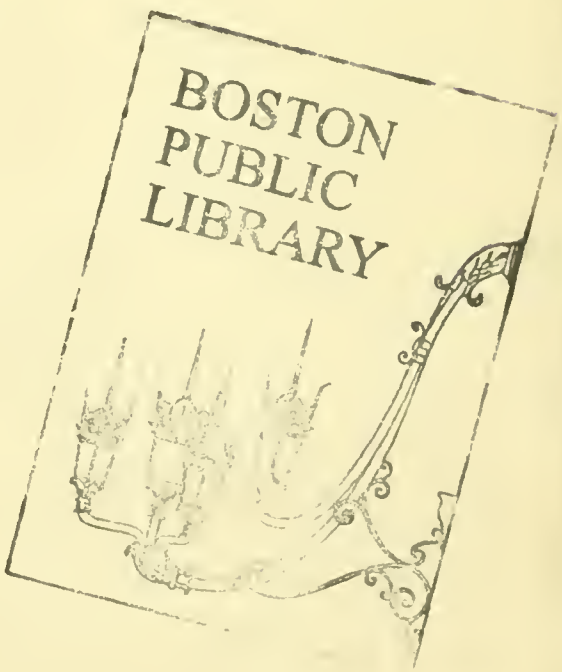
PARK PLAZA;
PUBLIC COSTS AND TAX REVENUE BENEFITS TO THE CITY OF BOSTON

BOSTON REDEVELOPMENT AUTHORITY
RESEARCH DEPARTMENT

July 1973



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City of Boston

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PARK PLAZA;
PUBLIC COSTS AND TAX REVENUE BENEFITS TO THE CITY OF BOSTON

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BOSTON REDEVELOPMENT AUTHORITY
RESEARCH DEPARTMENT

July 1973

Initially submitted as testimony in public hearings on 3rd submission.

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Submitted as supporting documentation (VIII-9) with Financial Plan to 4th Submission

PARK PLAZA;
PUBLIC COSTS AND TAX REVENUE BENEFITS
TO THE CITY OF BOSTON

Table of Contents

SUMMARY

A just completed study by the Research Department of the Boston Redevelopment Authority finds that, from the point of view of tax revenue benefits and public costs, Park Plaza would make an important contribution to the fiscal health of the City of Boston, very substantially greater than that provided by Parcels A, B, & C without Park Plaza.

Net tax revenue benefits to the city would range from $43 million to $102 million, over the 50 year projected period of acquisition, construction, completion, and useful life of the project, measured in terms of discounted present value. The projected net tax benefit yield would vary in accordance with the inclusion of indirect benefits and costs, as well as the assumption on tax yield.

Without Park Plaza, net tax revenue benefits, over the same period, would be very substantially less, - varying from $9 million to $17 million, in terms of discounted present value.

In the first year after completion, scheduled for 1983, Park Plaza will provide net tax revenue yields, to the city, ranging from $3.5 to $8 million. This net yield contrasts with that of only $0.5 million produced by Parcels A, B, & C at the present time.

Even in the period of property acquisition, construction, and completion, 1974-1983, Park Plaza will yield substantial net additional tax revenue benefits to the City of Boston, over and above the anticipated return of Parcels A, B, & C without Park Plaza. Under the development strategy for Park Plaza, the yield of property taxes on new construction will much more than compensate for the declining tax payments on existing properties as structures are demolished.

Park Plaza would provide a large spin-off of net tax revenue benefits to the state.

Park Plaza would be doubly innovative. It would demonstrate the feasibility of urban redevelopment without Federal funds for land cost write-down, and it would show that this could be done while advancing net tax revenue benefits to the City.

Park Plaza is designed to capture some of the prospective State and metropolitan region growth in jobs, income, population and housing for the City, thereby reinforcing the process of revitalization underway for a decade now. Park Plaza is a key part of a larger downtown Plan, and, because of its prime location, has an important sequential role. A non-urban renewal "build" alternative would, at best, yield only one-third of the net revenue benefits of Park Plaza. Even so, such an alternative is unrealistic in view of (1) the history of

lack of new investment interest on the part of present owners, (2) the long-term decline in property values in the project area, and (3) the deteriorating blighted condition. Through its contribution to growth in jobs, income and housing, Park Plaza would advance the mobility and choice of Boston's low and moderate income families.

I. SUMMARY OF FINDINGS, AND STUDY DESIGN

The proposed Park Plaza Urban Redevelopment Project will entail public service and facilities costs, increase the City's indebtedness and affect its debt servicing capacity. It will generate direct and indirect requirements for services and facilities beyond the public improvements for Park Plaza itself.

Tax revenue benefits, on the other hand, will also range well beyond the increase in the property tax yield. These will include revenues to Boston derived from the tax on retail sales in Park Plaza shops, the tax on the personal income of Park Plaza residents and workers, the tax on business income of Park Plaza enterprises, and various other taxes applicable in the construction phase and after. There would also be the increment in revenue generated indirectly by the impact of Park Plaza on the Boston economy.

The Study Design

To assess the impact of Park Plaza on public costs and tax revenue benefits, several types of comparisons would be desirable. We would want to know the public costs and tax revenue benefits of Parcels A, B, and C in 1973, before Park Plaza. We would want to know the benefits and costs in the first year after completion of Park Plaza (1983). We would want to know the present value (in 1973) of the incremental stream of public costs and tax revenue benefits through the entire period of the planned schedule of property acquisition, clearing, construction, completion, and the projected useful life of the project, spanning the years 1974-2023. We would want to compare this with the present value of the tax revenue benefits and public costs of Parcels A, B, and C, without Park Plaza, over the 50-year period 1974-2023.

We would want to know the year-by-year incremental pattern of tax revenue benefits and public costs in the period of acquisition, clearing, construction, and completion, 1974-83. We would want to know the interface between the decline

in property tax yield as existing structures are demolished, and the rise in yield as construction and completion proceed.

We would want to express the incremental stream of tax revenue benefits and public costs, over the 50-year time span, in terms of present value, discounting the future stream at a normal rate of return on investment (6 percent), because the City, in effect, will be investing in Park Plaza, and this investment must be compared with the alternative of no new investment. It would not be proper, for example, to compare the higher tax benefit yield of Park Plaza in 2023, with the lower yield without Park Plaza, without discounting both to reflect present value. And since there is a degree of uncertainty on projected occupancy rates and gross rental income, we would want to consider a range of tax yields.

We would want to know, in some detail, the direct public costs of Park Plaza, as well as its share of general municipal government costs.

We would want to know the relationship between the financing of the special project improvements of Park

Plaza, and the developer's payment to the City.

We would want to know about the tax benefits and public costs to the State.

This report presents a comparative analysis of the public costs and tax revenue benefits of Park Plaza, and examines the questions outlined above.

Net Tax Revenue Benefits, With and Without, Before and After Park Plaza

In summary, the study finds that, from the point of view of the revenue benefits and public costs, Park Plaza would make an important contribution to the fiscal health of the City of Boston, very substantially greater than that provided by Parcels A, B, and C without Park Plaza.

Net tax revenue benefits to the City, after deduction of public costs, would range from $43 million, when direct costs and benefits are considered, in the case of middle range tax yield assumptions, to $102 million, when direct and indirect costs and benefits are measured, together with a higher level tax yield assumption, over the entire period of acquisition, construction, completion, and useful life of the project, 1974-2023, all measured in terms of 1973 present value. See Chart 1 and Table I-1.

Without Park Plaza, net tax revenue benefits, from Parcels A, B, and C, over the same period, would be very substantially less, - totalling only $17 million, in the case of direct costs and benefits, and $9 million, when indirect costs are added.

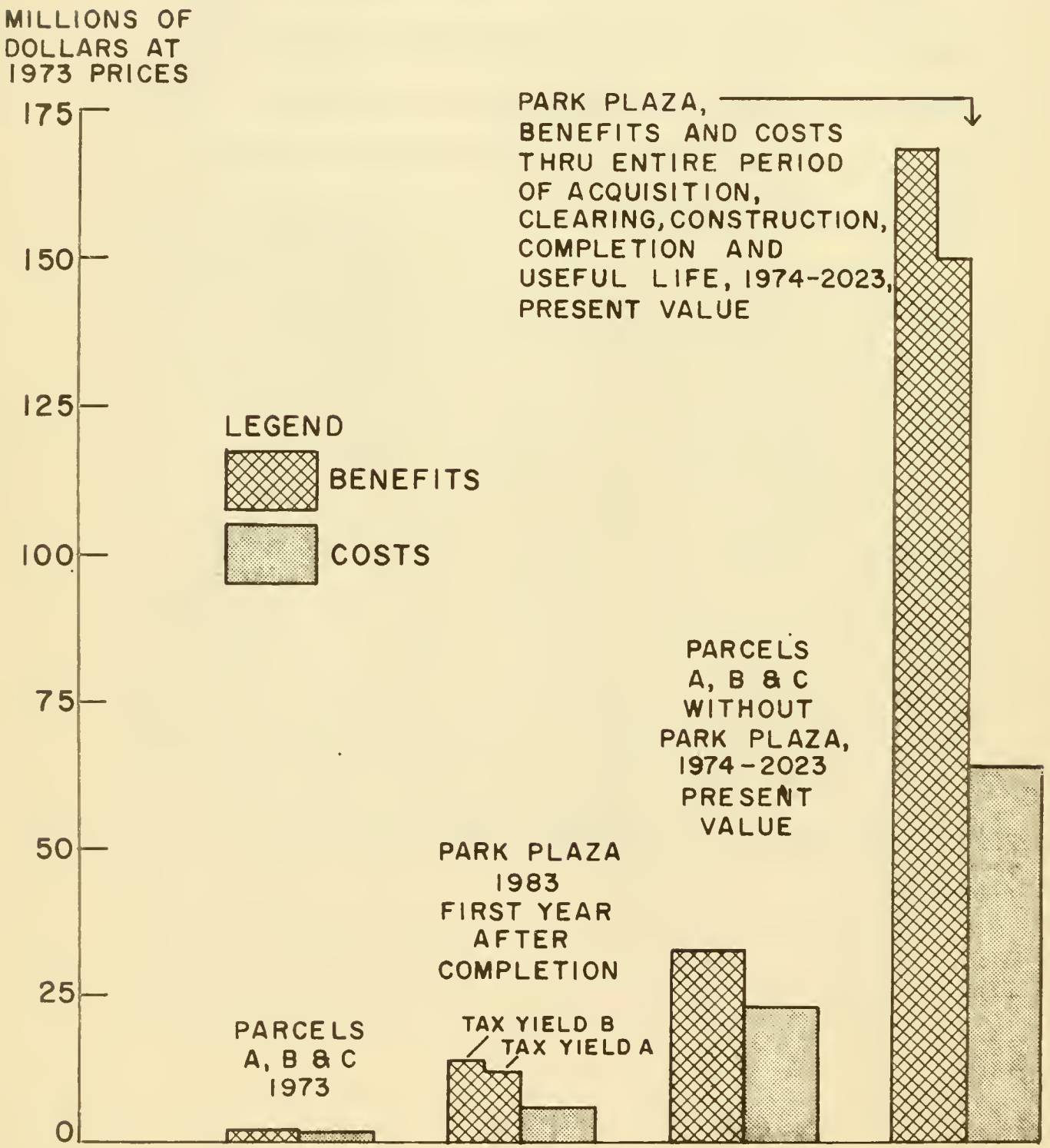
In 1973, Parcels A, B, and C will produce a negligible net tax revenue benefit of $1.1 million, when direct public costs are deducted, and only $0.5 million when indirect costs for general municipal government are included.

In contrast, in the first year after completion, scheduled for 1983, Park Plaza will provide net tax revenue yields to the City of Boston, over and above public costs, ranging from $3.5 million, in the case of direct benefits and costs, and middle range tax yield assumptions, to $8.1 million, when direct and indirect benefits and costs are measured, and a higher level tax yield is assumed.

CHART I

PARK PLAZA

PUBLIC COSTS AND TAX REVENUE BENEFITS TO THE CITY OF BOSTON



SOURCE: TABLE I-1

BOSTON REVELOPMENT AUTHORITY
RESEARCH DEPARTMENT

Table I-1

PARK PLAZA;
PUBLIC COSTS AND TAX REVENUE BENEFITS
TO THE CITY OF BOSTON
SUMMARY

	Public Costs	Tax Revenue Benefits	Net Benefits
	(Millions of Dollars at 1973 Prices)		
I. Park Plaza (Parcels A,B, & C) 1973			
Direct	$ .9	$2.0	$1.1
Direct & Indirect	1.5	2.0	0.5
II. Park Plaza 1983, Projected First Year After Completion			
Direct			
Tax Yield A	3.6	7.1	3.5
Tax Yield B	3.6	9.0	5.4
Direct & Indirect			
Tax Yield A	6.0	12.2	6.2
Tax Yield B	6.0	14.1	8.1
III. Parcels A, B & C Present Value of Costs and Benefits over 50 Year Period 1974-2023 Without Park Plaza			
Direct	14.8	31.8	17.0
Direct & Indirect	23.0	31.8	8.8
IV. Park Plaza, Present Value of Costs and Benefits through Entire Period of Acquisition, Clearing, Construction, Completion, and Useful Life of Project, 1974-2023			
Direct*			
Tax Yield A	46.3	89.5	43.2
Tax Yield B	46.3	111.0	64.7
Direct and Indirect*			
Tax Yield A	69.0	149.3	80.3
Tax Yield B	69.0	170.8	101.8

* Includes present value of developer's payment to the City of Boston.

Table I-1 (Continued)

Sources and Methods:

Direct Public Costs - Those directly associated with the public cost of Park Plaza as a place to live, work and shop, including public operating and capital costs for public housing, education, health service, police protection, fire protection, parks, cultural services, solid waste system, water supply, sewerage, public transit, and public surface transportation system.

Indirect Public Costs - Park Plaza share of the current and capital costs of municipal government for the City as a whole, over and above direct costs.

See Chapters II, IV, V, VII, VIII and IX.

Direct Public Benefits - The tax revenue yield to the City of the property tax, and the City's share of the State tax on sales, meals, and room occupancy, and on personal income and business income.

Indirect Public Benefits - The increment in property tax yield arising from the effect of Park Plaza in increasing property values in the adjacent neighborhoods; and the City's share of the increment in the State personal income and business income tax yield generated indirectly by Park Plaza residents and workers.

See Chapters III, V, VI, VIII and IX.

Present Value - The value in 1973 of the incremental stream of public costs and tax revenue benefits over the 50-year period, 1974-2023, discounted at 6 percent. The 50-year period includes the phases of acquisition, clearing, construction and completion of Park Plaza Parcels A,B, & C, through 1982, and the projected 40 years of useful life of the project.

See Chapters V, VI, & VII.

Tax Yield A - Assumes a property tax yield, in first year after completion, in 1983, of $5.6 million; see Chapters III & VI.

Tax Yield B - Assumes a property tax yield, in first year after completion, in 1983, of $7.5 million; see Chapters III & VI.

Furthermore, with Park Plaza, the City of Boston will enjoy a significantly higher ratio of benefits to costs. While the ratio of direct and indirect benefits to costs of Parcels A, B, and C, to the City, will be 1.3 in 1973, and 1.4 over the 50-year period, 1974-2023, it will rise to a range of 2.0 to 2.3 in 1983, with Park Plaza, and a range of 2.2 to 2.5 over the full period of acquisition, construction, completion and useful life.

The conservative nature of the tax revenue benefit projections merit a special note. The calculations make no provision for any increase in the productivity of the income generating property in terms of expanding tax yields measured in dollars of constant value.

The Incremental Stream of Tax Revenue Benefits and Public Costs

Even in the period of property acquisition, construction, and completion, 1974-1983, Park Plaza will produce substantial net additional tax revenue benefits to the City of Boston, over and above the anticipated net yields of Parcels A, B, and C without Park Plaza. Over the period 1974-83, the net tax revenue benefits, after deduction of costs, would range from

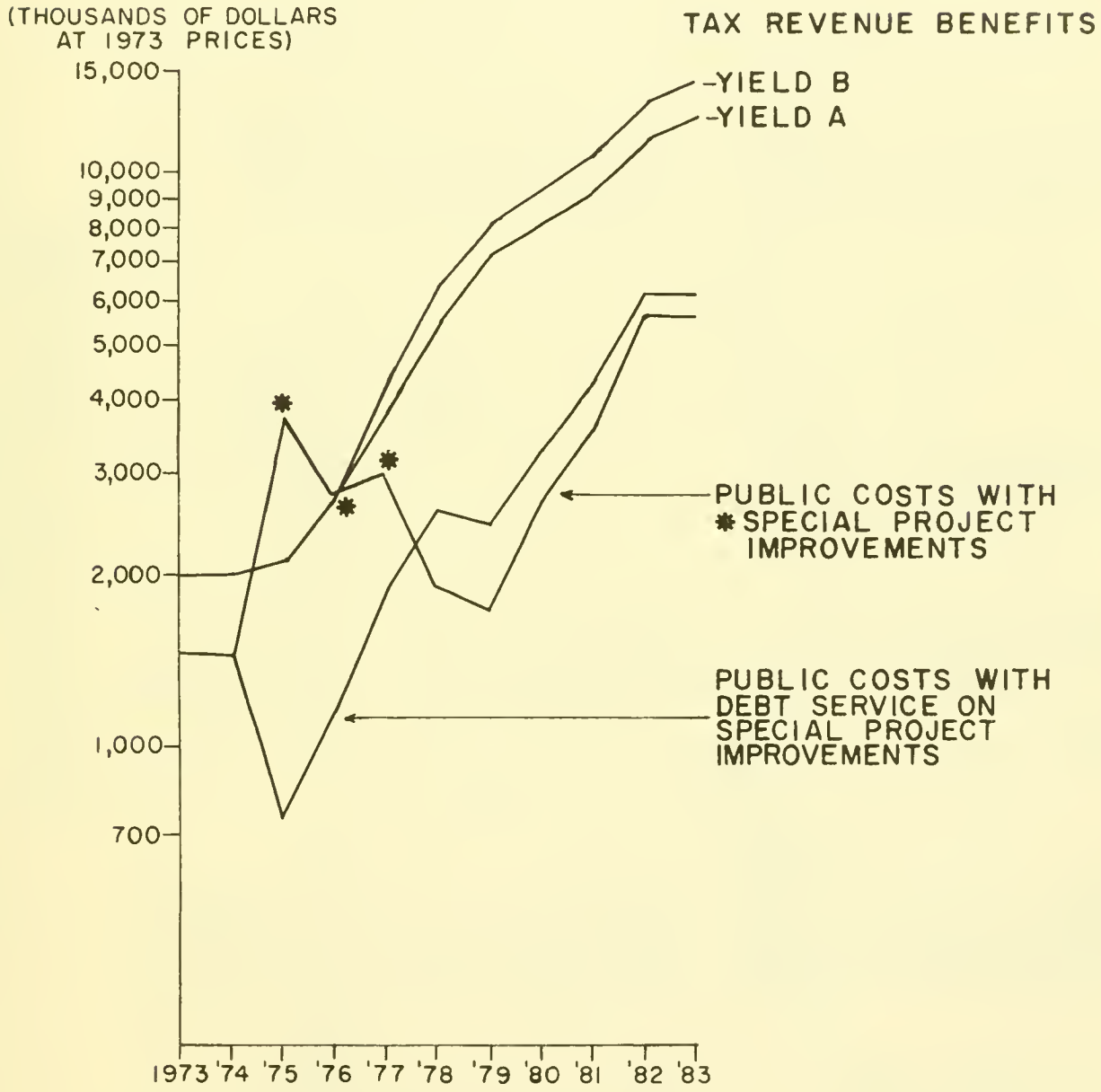
$32 million to $43 million, under middle range and higher level tax yield assumptions, and alternate methods of calculating cost. See Chart 2 and Table I-2. In contrast, Parcels A, B, and C, without Park Plaza, would yield a net tax revenue benefit of only $5 million, over the 10-year period, and only $11 million, if only direct costs are taken into account.

Under the cost calculation method used in the present study, whereby the full cost of special project improvements are charged to the year in which they occur, public costs would exceed tax revenue benefits in only one year, - 1975. Under an alternate method for calculating costs, whereby debt service on special project improvements are charged (in place of the project improvement cost), the way in which the cost would actually appear in the City budget, benefits would significantly exceed costs in each year of the 1974-83 period of property acquisition, construction and completion.

CHART 2

PARK PLAZA

INCREMENTAL STREAM OF TAX REVENUE BENEFITS AND PUBLIC COSTS TO THE CITY OF BOSTON



SOURCE: TABLE I-2

BOSTON REDEVELOPMENT AUTHORITY
RESEARCH DEPARTMENT

Table I-2

PARK PLAZA;
THE INCREMENTAL STREAM OF TAX REVENUE BENEFITS AND
PUBLIC COSTS TO THE CITY OF BOSTON
(Thousands of Dollars at 1973 Prices)

	(1) Public Costs	(2) Less Special Project Improvements	(3) Plus Debt Service On Special Project Improvements	(4) Equals: Public Costs (Alternate Calculation)	(5) Tax Revenue Benefits Tax Yield A	Tax Yield B
1974	$1,459	-	-	$1,459	$2,018	$2,018
1975	3,731	$3,000	-	731	2,078	2,078
1976	2,731	2,000	$412	1,143	2,759	2,759
1977	3,011	1,800	690	1,901	3,893	4,193
1978	1,902	-	672	2,574	5,439	6,349
1979	1,752	-	654	2,406	7,064	8,164
1980	2,701	-	636	3,337	8,106	9,396
1981	3,544	-	618	4,162	9,209	10,619
1982	5,608	-	600	6,208	11,421	13,171
1983	5,601	-	582	6,183	12,265	14,165

	(6) Benefits Less Costs Tax Yield A	Tax Yield B	(7) Benefits Less Costs Alternate Calculation Tax Yield A	Tax Yield B
1974	$ 559	$ 559	$ 559	$ 559
1975	-1,653	-1,653	1,347	1,347
1976	28	28	1,616	1,616
1977	882	1,182	1,992	2,292
1978	3,537	4,447	2,865	3,775
1979	5,312	6,412	4,658	5,758
1980	5,405	6,695	4,769	6,059
1981	5,665	7,075	5,047	6,457
1982	5,813	7,562	5,213	6,963
1983	6,664	8,564	6,082	7,982
1974-83	$32,232	$40,871	$34,148	$42,808

Col. (4) = Col. (1) - Col. (2) + Col. (3)
Col. (6) = Col. (5) - Col. (1)
Col. (7) = Col. (5) - Col. (4)

Sources and Methods: See Chapters VI and VII.

The Incremental Stream of Tax Revenue Benefits

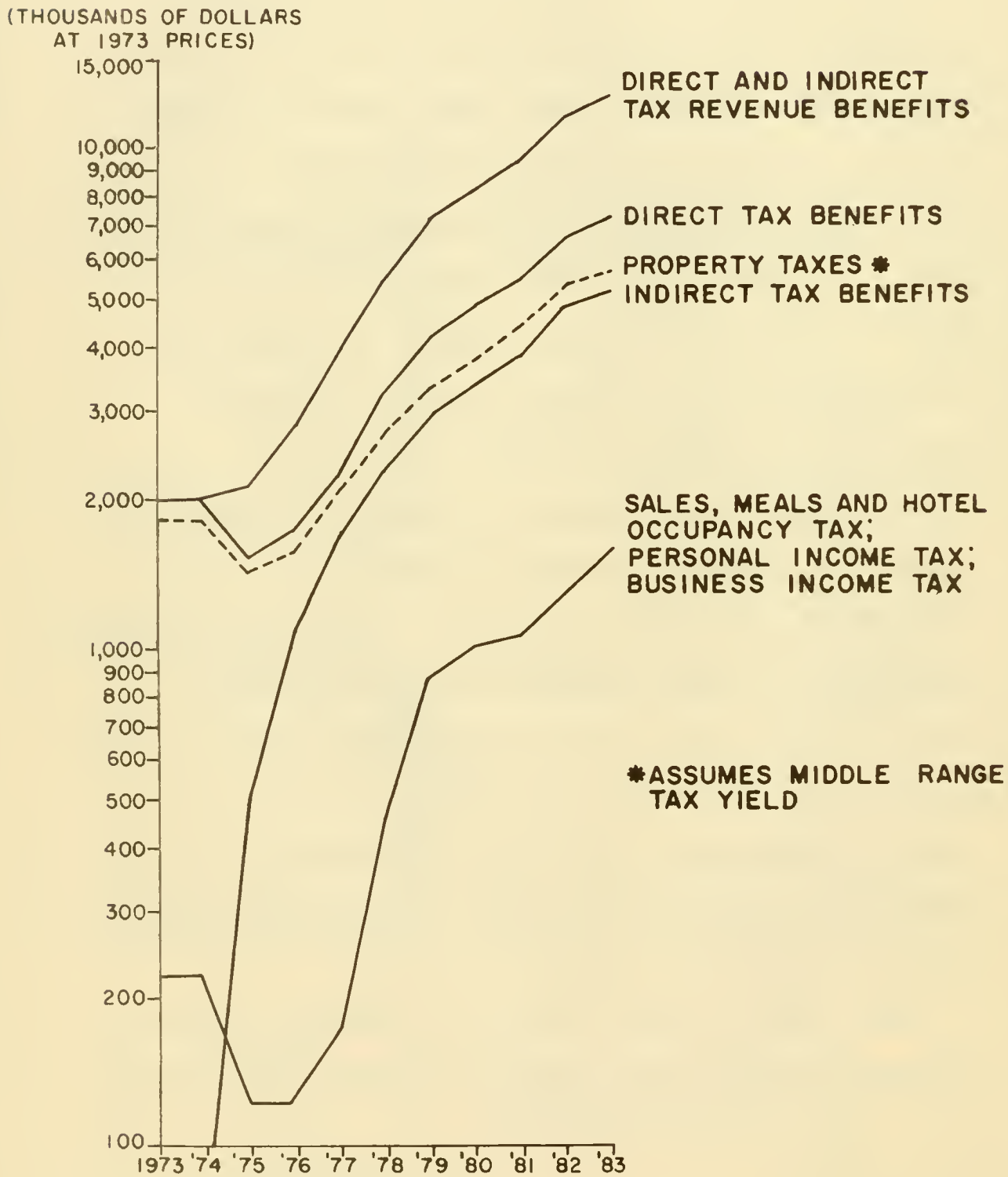
In the case of direct tax revenue benefits alone, during the period of acquisition, construction, and completion, there would be a dip in tax yields in the years 1975 and 1976 only, reflecting the hiatus between demolition of existing structures and new construction. See Chart 3. The flow of tax revenue benefits will be sustained and expanded by several factors. Buildings will be demolished and land cleared in phases (described below) closely timed with new construction plans. Existing property will continue to generate tax revenues until the buildings are acquired for demolition. Thereafter, taxes will be paid on the land. Once new construction is completed, property taxes will be paid on each new structure in accordance with the provisions of Massachusetts Law 121A. As new construction proceeds through the six phases of development of Park Plaza, tax yields will rise dramatically because of the high income generating quality of Park Plaza and its component stages.

Tax revenue benefits, direct and indirect, have been calculated for each year of the acquisition, construction,

CHART 3

PARK PLAZA

INCREMENTAL STREAM OF TAX REVENUE BENEFITS TO THE CITY OF BOSTON



SOURCE: TABLE VI-1

BOSTON REDEVELOPMENT AUTHORITY
RESEARCH DEPARTMENT

completion, and useful life phases of Park Plaza. The calculations, and the estimating method by which they were derived, are described in detail in Chapters III and VI, and only some salient features of results and method will be noted here. The phasing out of the yield of the old, and the phasing in of the new, has already been noted. Property tax yields begin to rise, above present levels, in 1977. In the first year after completion of Park Plaza, in 1983, property tax yields are projected at $5.6 million, under middle range tax yield assumptions, and at $7.5 million, with a higher level of tax yield assumed. The assumptions and their base are described in Chapters III and VI.

For the calculation of the yield of the state sales, meals and hotel occupancy tax, detailed projections of sales and hotel occupancy were made. For the yield on the state personal income tax, the number of residents and workers, and their distribution by levels of income, were made. For the yield on the state taxes on business income, the value added and net taxable income of business enterprises was projected.

For the calculation of Boston's share in these state tax yields, it was assumed that Boston would receive 15 percent of the state sales tax and occupancy tax, which represents, approximately, Boston's present share of state aid, as well as the share of state sales taxes Boston generates. It was also assumed that Boston would receive 11 percent of the state taxes on personal income and business income, in the form of state aid; this percentage represents Boston's shares of the state population.

For the calculation of indirect tax revenue yield, the impact of Park Plaza on the City's economy was estimated. In the case of property tax yields, account was taken of the effect of earlier urban redevelopment projects (Prudential Center) on the market value and assessed value of properties in adjacent neighborhoods. In the case of the impact of the income of Park Plaza residents and workers, and the value added by Park Plaza enterprises on the City's economy and related tax yields, inter-industry coefficients of direct and indirect effect of growth in income and value added, prepared by the

U.S. Bureau of Economic Analysis, were utilized and applied. Boston's share in these yields were derived as described above. The detailed calculations, and the sources and methods, are fully described in Chapters III and VI.

Of the direct and indirect tax revenue yield to the City of Boston, in the first year after completion, 1983, under middle range property tax yield assumptions, calculated at $12.2 million (in dollars of constant value at 1973 prices), $5.6 million represents the direct yield of the property tax, (with the current tax rate), $4.4 million is the indirect yield arising from the growth in market value and assessed value of property in adjacent neighborhoods, and the remaining $2.2 million is made up of Boston's share of the direct and indirect yield of state taxes.

The high tax yield of Park Plaza, and the resultant high net revenue yield after deduction of public costs, come as no surprise since Park Plaza, in comparison with other city neighborhoods and project areas, is characterized by lower citizen costs and higher citizen, worker and business income.

Planned Schedule of Acquisition, Construction, Completion, and Entry into Tax Rolls, by Stage

Critical to the estimation of public costs and tax revenue benefits is the planned schedule of acquisition, construction, completion, and entry into tax rolls of Park Plaza, by stage. The Cooperation Agreement between the City of Boston and the Boston Redevelopment Authority, executed on January 6, 1971, describes the six stages of the project and the time limits for their execution. For the purposes of the present study of benefits and costs, a midway point, in the case of each stage and its time limit range, was selected. Based on this schedule, the entry of each stage of the Park Plaza project onto the City's property tax rolls was estimated. Allowance has been made for the time that will be taken in litigation and related matters. See Table I-4.

The hotel and parking garage is scheduled for completion by July 1977 and will enter the property tax rolls on January 1978.

The first residential tower and the first portion of the retail arcade are scheduled for completion by July 1978,

Table I-4

PARK PLAZA;
PLANNED SCHEDULE OF ACQUISITION, CONSTRUCTION, COMPLETION AND ENTRY INTO TAX ROLLS, BY STAGE

	Stages By Month And Year	Project Completion Dates
STAGE 1		July 1977
Hotel and Parking Garage		
Boston Redevelopment Authority Acquires Land	January 1975	
Boston Urban Associates Acquires Land	April 1975	
Boston Urban Associates Begins Construction	July 1975	
First Taxable Year	January 1978	
Second Taxable Year	January 1979	
Third Taxable Year	January 1980	
Fourth Taxable Year	January 1981	
Fifth Taxable Year	January 1982	
Sixth Taxable Year	January 1983	
Seventh Taxable Year	January 1984	
STAGE 2		July 1978
First Residential Tower and First Portion of Retail Arcade (between Charles and Hadassahway)		
Boston Redevelopment Authority Acquires Land	July 1975	
Boston Urban Associates Acquires Land	October 1975	
Boston Urban Associates Begins Construction	January 1976	
First Taxable Year	January 1979	
Second Taxable Year	January 1980	
Third Taxable Year	January 1981	
Fourth Taxable Year	January 1982	
Fifth Taxable Year	January 1983	
Sixth Taxable Year	January 1984	
Residents: 1,000		

Table I-4 (Continued)

	Stages By Month And Year	Project Completion Dates
STAGE 3		July 1979
Retail Arcade and Low Rise Office Space (between Hadassah Way and Arlington St.)		
Boston Redevelopment Authority Acquires Land	January 1977	
Boston Urban Associates Acquires Land	April 1977	
Boston Urban Associates Begins Construction	July 1977	
First Taxable Year	January 1980	
Second Taxable Year	January 1981	
Third Taxable Year	January 1982	
Fourth Taxable Year	January 1983	
Fifth Taxable Year	January 1984	
Residents: 1,000		
STAGE 4		April 1981
Residential Tower (Western Portion of Parcel 3)		
Boston Redevelopment Authority Acquires Land	October 1978	
Boston Urban Associates Acquires Land	January 1979	
Boston Urban Associates Begins Construction	April 1979	
First Taxable Year	January 1982	
Second Taxable Year	January 1983	
Third Taxable Year	January 1984	
Residents: 1,000	April 1981	

Table I-4 (Continued)

	Stages By Month And Year	Project Completion Dates
STAGE 5		April 1982
Third Residential Tower (Eastern Portion of Parcel 3 to include low to moderate housing for elderly)		
Boston Redevelopment Authority Acquires Land	July 1979	
Boston Urban Associates Acquires Land	October 1979	
Boston Urban Associates Begins Construction	January 1980	
First Taxable Year	January 1983	
Second Taxable Year	January 1984	
Residents: 1,000	April 1982	
STAGE 6		October 1982
Office Tower (Parcel 1- Corner of Arlington and Boylston Sts.)		
Boston Redevelopment Authority Acquires Land	April 1980	
Boston Urban Associates Acquires Land	July 1980	
Boston Urban Associates Begins Construction	October 1980	
First Taxable Year	January 1983	
Second Taxable Year	January 1984	
Residents:		
4,650 Total	January 1978	
8,200 Total	January 1980	
9,200 Total	January 1981	
10,200 Total	January 1982	
12,600 Total	January 1983	

Sources: In computing the timetable for Park Plaza's construction, it was assumed that the review process timetable of 5 major stages would be completed by January 1975, before first stage acquisition.

The development schedule for the various stages of Park Plaza is based on Item No. 8 of the Cooperation Agreement between the City of Boston and the Boston Redevelopment Authority, executed on January 6, 1971. The developmental scheduling is based on a halfway point of the limits outlined in this document and calls for a completion of Stage 6 by October, 1982.

and will enter the tax rolls on January 1979.

The remainder of the retail arcade and the planned low rise office space, (Stage 3), are scheduled for completion by July 1979, and will enter the tax rolls in January 1980.

The second residential tower is scheduled for completion by April 1981, and will enter the tax rolls in January 1982.

The third residential tower is scheduled for completion by April 1982 and will enter the tax rolls in January 1983.

The office tower is scheduled for completion in October 1982 and will enter the tax rolls in January 1983.

Upon completion, Park Plaza is planned to have 3,000 residents and 9,600 workers, in comparison with its present negligible resident population of 41 persons, and 1,500 workers.

Should the actual schedule vary, the projected costs and benefits would also vary, but since existing structures would not be demolished and land cleared until each phase of construction is ready, the property tax hiatus would

continue to be minimal.

Tax Revenue Benefits, With and Without, Before and After Park Plaza

Park Plaza will yield substantial tax revenue benefits to the City of Boston, - in the acquisition, construction, and completion phases, and throughout its projected useful life. But to properly appreciate the significance of these benefits, it would be important to make a comparison of the present discounted value of tax yields through the period of acquisition and useful life of Park Plaza, with the 50-year yield of Parcels A, B, and C without Park Plaza, and to compare the estimated yield in 1973, with the projected yield in the first year after completion of Park Plaza, 1983.

If Park Plaza proceeds in accordance with the planned schedule, the discounted present value of tax revenue benefits to the City from acquisition through completion and useful life, 1974-2023, would total $146 million, under middle range tax yield assumptions, and $167 million, with higher level tax yields. See Table I-5. Tax revenue generated directly would amount to $86 million and $108 million, respectively, in accordance with the alternative tax yield

Table I-5

PARK PLAZA;
TAX REVENUE BENEFITS TO THE CITY OF BOSTON
AND THE STATE
SUMMARY
(Millions of Dollars at 1973 Prices)

	Parcels A,B, & C 1973	Park Plaza 1983 Projected First Year After Completion	Parcels A,B, & C Present Value of Benefits Over 50-yr. Period 1974-2023 Without Park Plaza	Park Plaza Present Value of Benefits Through Entire Period of Acquisition, Clearing, Construction, Completion, and Useful Life of Project, 1974-2023
I. CITY AND STATE TAX REVENUE GENERATED				
A. GENERATED DIRECTLY				
Property Tax				
Tax Yield A	$1.8	$5.6	$28.4	$68.8
Tax Yield B		7.5		90.3
Sales, Meal & Hotel Occupancy Tax	.6	2.7	10.0	36.1
Personal Income Tax	.8	8.2	12.9	82.7
Business Income Tax	.3	2.3	4.7	26.2
Sub-totals:				
With Tax Yield A	3.6	18.8	56.0	213.8
With Tax Yield B		20.7		235.3
B. GENERATED INDIRECTLY				
Property Tax	-	4.4	-	53.0
Personal Income Tax	-	4.7	-	47.1
Business Income Tax	-	1.9	-	14.9
Sub-total:	-	11.0	-	115.0
C. GENERATED DIRECTLY & INDIRECTLY				
Sub-totals:				
With Tax Yield A	3.6	29.8	56.0	328.8
With Tax Yield B		31.7		350.3

Table I-5 (Continued)

	Parcels A,B, & C 1973	Park Plaza 1983	Parcels A,B, & C Without Park Plaza	Park Plaza Present Value 1974-2023
II. BOSTON SHARE OF CITY AND STATE REVENUE				
A. GENERATED DIRECTLY				
Property Tax				
Tax Yield A	$1.8	$5.6	$28.4	$68.8
Tax Yield B		7.5		90.3
Sales, Meal & Hotel Occupancy Tax	.1	.4	1.5	5.4
Personal Income Tax	.1	.8	1.4	9.1
Business Income Tax		.3	.5	2.9
Sub-totals:				
With Tax Yield A	2.0	7.1	31.8	86.0
With Tax Yield B		9.0		107.7
B. GENERATED INDIRECTLY				
Property Tax	-	4.4	-	53.0
Personal Income Tax	-	.7	-	5.2
Business Income	-		-	1.6
Sub-Total:	-	5.1	-	59.8
C. GENERATED DIRECTLY AND INDIRECTLY				
Sub-total:				
With Tax Yield A	2.0	12.2	31.8	146.0
With Tax Yield B		14.1		167.5

Sources and Methods:
See Chapters II, III, V, and VI.
See also Sources and Methods citations in Table I-1.

assumptions. Property tax revenue would make up four-fifths of these totals.

Without Park Plaza, Parcels A, B, and C, over the 50-year span, 1974-2023, would yield a tax revenue total of $32 million, measured in terms of present value. In effect, with Park Plaza, the City would gain $114 million to $135 million more than it would obtain without Park Plaza.

In 1973, Parcels A, B, and C will produce an estimated $2 million in tax revenue. In the first year after completion, 1983, Park Plaza will produce $12 to $14 million in tax revenue for the City of Boston, representing an annual revenue gain of $10 to $12 million.

The Projected Stream of Property Tax Payments

The planned schedule of acquisition, construction, completion and entry into tax rolls of Park Plaza, by stages, and the related pairing of acquisition and clearing with new construction, will enhance the property tax yield to the City, in the 1974-83 period.

Under the development strategy for Park Plaza, the yield of property taxes on new construction will much more

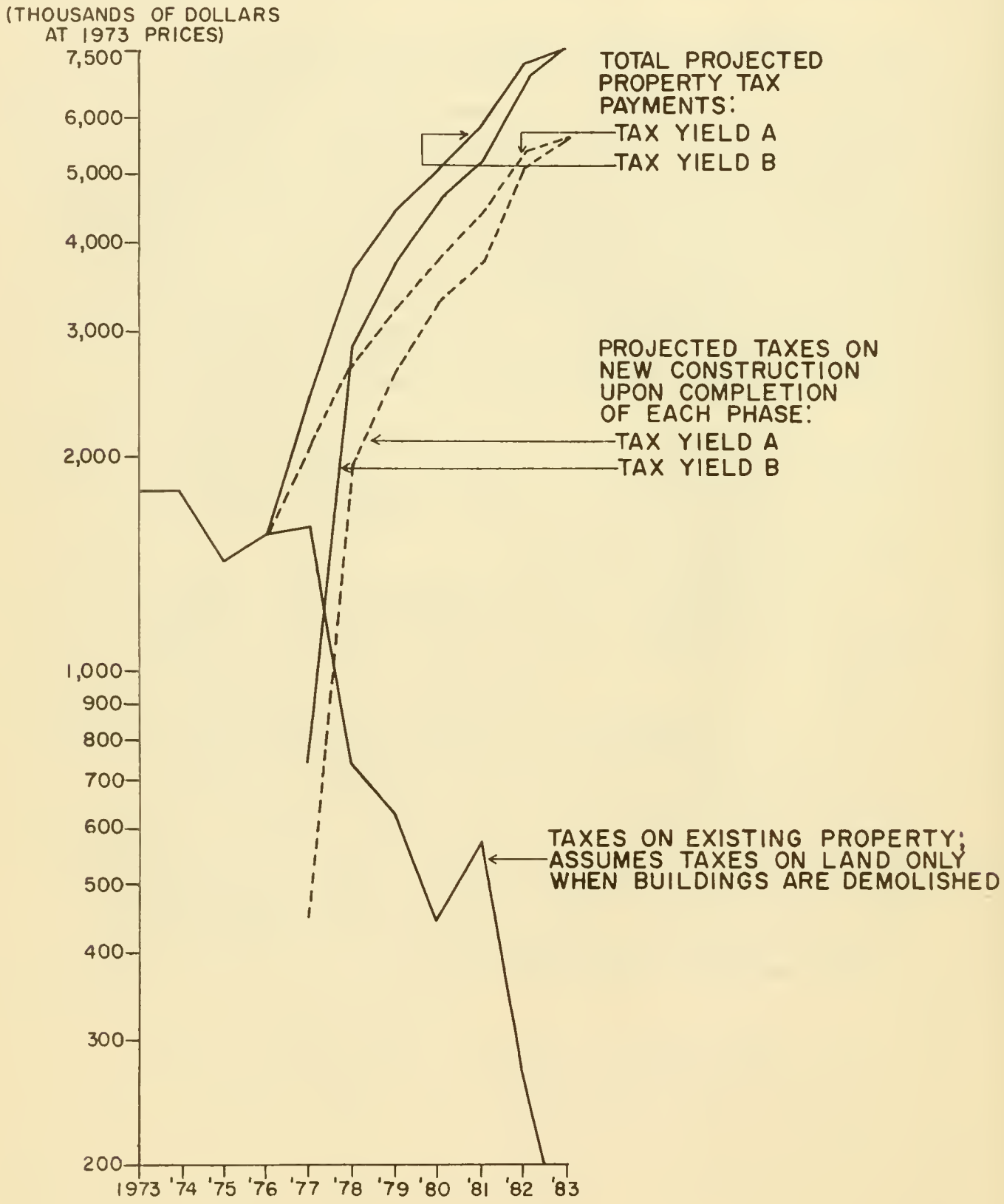
than compensate for the declining yield on existing properties as structures are demolished. Under this strategy, property tax payments on existing properties are projected to decline gradually from a level of $1.8 million, in 1974, to $275,000 in 1982 and zero in 1983. See Chart 4 and Table I-6. In the meantime, taxes on acquired land and new construction begin in 1977 and rise, respectively, to $5.6 million and $7.5 million, in 1983, in accordance with middle range and higher level tax yield assumptions.

As a consequence, the tax benefit yield of Park Plaza, in the period 1974-83, would exceed that of Parcels A, B, and C, without Park Plaza by $14 million, under middle range tax yield assumptions, and by $23 million, under higher level tax yields. Property tax payments would fall below the present yield in only two years, 1975 and 1976, and, even then, the property taxes foregone would not exceed $650,000.

CHART 4

PARK PLAZA

PROJECTED STREAM OF PROPERTY TAX PAYMENTS THROUGH ACQUISITION, CLEARING, CONSTRUCTION AND COMPLETION PHASES



SOURCE: TABLE I-6

BOSTON REDEVELOPMENT AUTHORITY
RESEARCH DEPARTMENT

Table I-6

PARK PLAZA:
PROJECTED STREAM OF PROPERTY TAX PAYMENTS DURING THE ENTIRE PERIOD OF ACQUISITION, CLEARING, CONSTRUCTION, COMPLETION, AND USEFUL LIFE OF THE PROJECT, 1974-2023
(Millions of Dollars at 1973 Prices)

Year	(1) Taxes on Existing Property; Assumes Taxes on Land Only When Buildings Are Demolished*	(2) Projected Taxes On New Construction Upon Completion Of Each Phase: Tax Yield A	(3) Projected Taxes On New Construction Upon Completion Of Each Phase: Tax Yield B	(4) Total Projected Property Tax Payments: Tax Yield A	(5) Total Projected Property Tax Payments: Tax Yield B
1974	$1.800	-	-	$1.800	$1.800
1975	1.431	-	-	1.431	1.431
1976	1.572	-	-	1.572	1.572
1977	1.591	.450(a)	.750(a)	2.041	2.341
1978	.745	1.950(b)	2.860(b)	2.705	3.615
1979	.625	2.640(c)	3.740(c)	3.275	4.375
1980	.445	3.320(d)	4.610(d)	3.775	5.065
1981	.571	3.770(e)	5.180(e)	4.341	5.751
1982	.275	5.060(f)	6.810(f)	5.345	7.095
Annually, 1983 to 2023	0	5.600	7.500	5.600	7.500

* As property is acquired by the Boston Redevelopment Authority, it would go off the tax rolls, reappearing three months later as it is acquired by the developer.

Sources and Methods:

Col. 1 - Taxes on Existing Property Including Land and Buildings. Assumes that, as Parcels are Acquired by the Developer and Buildings are Demolished, Taxes will be Paid on Land only until New Construction is Completed, Building by Building.

Cols. 2&3 -Projected Taxes on New Construction upon Completion of Each Phase. Tax Yield A Assumes a Property Tax Yield of $5.6 Million in the First Year after Completion, in 1983. Tax Yield B Assumes a Property Tax Yield of $7.5 Million in the First Year after Completion, in 1983. The Assumed Construction Phases are as follows:

Table I-6 (Continued)

Sources and Methods (Continued):

(a) Hotel and Parking Garage are Completed in Mid-1977;
(b) First Residential Tower and First Portion of the Retail Arcade are Completed by the Beginning of 1978;
(c) The Remaining Portion of the Retail Arcade, and the Low-Rise Office Building are Completed by Mid-1979;
(d) Construction Progresses on the Second Residential Tower;
(e) Second Residential Tower is Completed in Early 1981;
(f) Third Residential Tower is Completed in Spring 1982, and Office Tower is Completed in Fall 1982.

See Chapter VI.

Col.4 - Col.(1) plus Col.(2). See Chapter VI.

Col.5 - Col.(1) plus Col.(3). See Chapter VI.

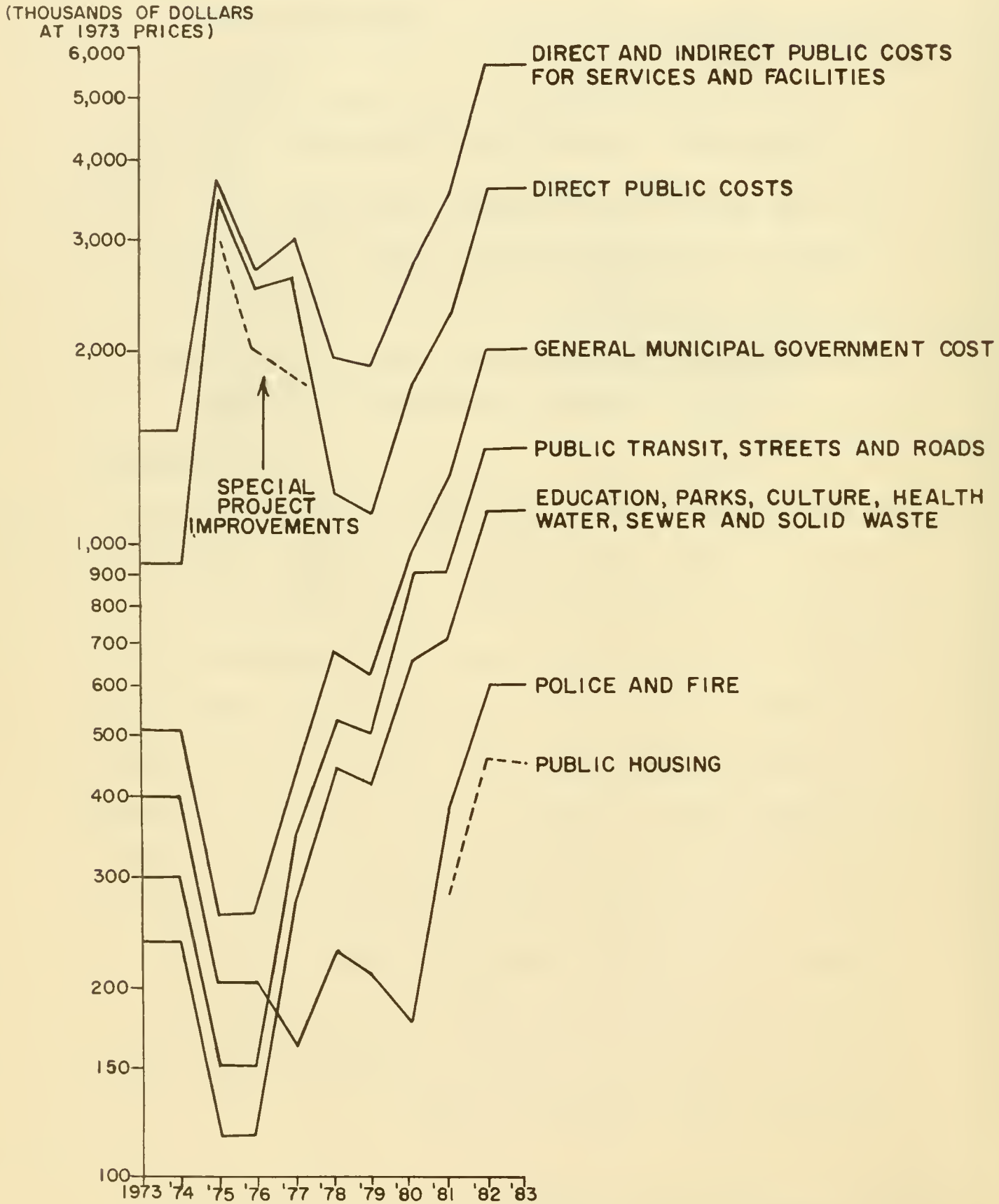
The Incremental Stream of Public Costs for Services and Facilities

As Park Plaza evolves from its present make-up of structures with 41 residents and 1,500 workers, through the phases of demolition, construction and completion, to a residential-retail-office complex housing 3,000 people and serving 9,600 workers, in 1983, in accordance with the planned development schedule, a complex pattern of public costs for services and facilities will ensue. In the early years, public costs for services will decline as demolition and land clearing proceeds and as new construction starts. See Chart 5. In 1975, 1976 and 1977, special project improvements will raise the total level of public costs. As noted earlier, for the purposes of this study, the full costs of special project improvements are charged to the years in which they occur, even though the actual impact on the City's budget would be represented by annual debt service payments spread over a longer time period. As Park Plaza's six stages of development are completed and occupied, one by one, public costs for services and facilities will rise, reaching a projected level of $6.0 million, in 1983, in comparison with an estimated level of $1.5 million in 1973.

CHART 5

PARK PLAZA

INCREMENTAL STREAM OF PUBLIC COSTS FOR SERVICES AND FACILITIES TO THE CITY OF BOSTON



SOURCE: TABLE VII-1

BOSTON REDEVELOPMENT AUTHORITY
RESEARCH DEPARTMENT

The measurement of the flow of public costs, fully described in detail in Chapters IV and VII, includes specific estimates of the direct public services and facilities costs for police and fire protection, education, water, sewer and solid waste, parks, cultural activities, health, public transit, streets and roads, public housing, and special project improvements. In addition, since Park Plaza must bear its share of general municipal government costs, these indirect costs have also been projected.

The estimates of public costs, flowing from each phase of the development of Park Plaza, incorporate all of the detailed knowledge at hand on the nature of the evolution of each cost category, including, for example, the special needs for public transit, public housing, and police and fire protection. In some cases, the measurement of public costs was related to the resident population, their income levels and household structure. In other cases, costs were calculated in terms of the needs of the projected day-time population of residents, workers, and shoppers. An attempt was made to measure every foreseen

aspect of public cost.

Public Costs, With and Without, Before and After Park Plaza

In addition to the portrayal of the stream of public costs in the property acquisition, demolition, construction and completion phases, analyses of the full scope of public costs with and without, before and after Park Plaza were also prepared so that the public cost alternatives could be examined in a proper perspective.

Public costs of Park Plaza, through the entire period of acquisition, clearing, construction, and useful life, measured in terms of present value, and in dollars at 1973 prices, over the 50-year period 1974-2023, will total $69 million. See Table I-7. This would include a projected direct cost for services and facilities of $46 million, and Park Plaza's share of general municipal government costs of $23 million.

Without Park Plaza, the public costs attributable to Parcels A, B, and C, over the 50-year period 1974-2023, measured in terms of present value, would total $23 million. This estimate does not include any provision for the public cost of blight and crime.

Table I-7

PARK PLAZA:
PUBLIC COSTS TO THE CITY OF BOSTON
(Millions of Dollars at 1973 Prices)

	Parcels A,B,& C 1973	Park Plaza 1983 Projected First Year After Completion	Parcels A,B, & C, Present Value of Costs Over 50-Year Period 1974-2023 Without Park Plaza	Park Plaza, Present Value Of Costs Through Entire Period of Acquisition, Clearing, Construction, Completion, and Useful Life of Project, 1974-2023
PUBLIC COSTS FOR SERVICES AND FACILITIES, TOTAL	$1.459	$6.181	$23.124	$69.012
DIRECT SERVICES AND FACILITIES COSTS	.939	4.185	14.739	46,275
Public Safety(Pol.&Fire)	.401	.605	6.321	7.316
Health and Hospitals	.001	.060	.016	.575
Sanitation, Sewer & Water	.181	.853	2.829	9.835
Streets and Roads	.096	.270	1.501	3.177
Education	-	.037	-	.402
Transit	.204	1.139	3.189	13.015
Cultural	-	.003	-	.033
Parks	.056	.181	.883	2.164
Public Housing	-	.455	-	3.983
Special Project Improvements	-	.582	-	5.776
GENERAL MUNICIPAL GOVERNMENT COSTS	.520	1.996	8.385	22.736

Sources and Methods:
See Chapters II, IV, V, & VII.

See also Sources and Methods Citations in Table I-1.

Additional perspective may be gained from a comparison of annual public costs before and after Park Plaza. Parcels A, B, and C, in 1973, entailed an estimated public cost of $1.5 million, including $939,000 for direct costs, and $520,000 as the share of general municipal government cost.

In the first year after completion, 1983, Park Plaza would generate a public cost of $6.2 million, including direct costs of $4,203,000 and indirect costs of $1,996,000.

Cost of Special Project Improvements; Present Value of the Developer's Payments

As noted earlier, for the purposes of the present study, the cost of special project improvements have been charged to the years in which they would occur (1975, 1976, and 1977). In actuality, however, these costs would appear in the City's budget as a stream of debt service payments. In effect, the projected $6.8 million of special project improvement costs, spread over three years, would involve debt service payments ranging from $412,000 in 1976 and $689,800 in 1977 to a final payment of $147,420 in 1996. See Table I-8. Debt service payments would total

Table I-8

PARK PLAZA:
COST TO THE CITY OF BOSTON OF SPECIAL PROJECT IMPROVEMENTS:
PRESENT VALUE OF THE DEVELOPER'S PAYMENT
(Dollars at 1973 Prices)

Year	Projected Debt Service On $6.8 Million of Project Improvement Bonds; $4.0 Million To be Issued in 1975, And $2.8 Million to Be Issued in 1976		Developer's Payments	
	Projected Payments (1)	1973 Present Value Discounted At 6% (2)	Schedule of Payments (3)	1973 Present Value Discounted At 6% (4)
1975	-	-	-	-
1976	$412,000	$346,080	$3,000,000	$2,520,000
1977	689,800	546,322	-	-
1978	671,780	501,820	-	-
1979	653,760	460,901	-	-
1980	635,740	422,767	-	-
1981	617,720	387,310	-	-
1982	599,700	355,022	-	-
1983	581,680	324,577	-	-
1984	563,660	297,049	-	-
1985	545,640	271,183	-	-
1986	527,620	247,454	-	-
1987	509,600	225,243	-	-
1988	491,580	204,989	150,000	62,550
1989	473,560	186,583	150,000	59,100
1990	455,540	169,005	150,000	55,650
1991	437,520	153,132	150,000	52,500
1992	419,500	138,855	150,000	49,650
1993	401,480	125,262	150,000	46,800
1994	383,460	112,737	150,000	44,100
1995	365,440	101,592	150,000	41,700
1996	147,420	38,624	150,000	39,300
1997	-	-	150,000	37,050
1998	-	-	150,000	34,950
1999	-	-	150,000	33,000
2000	-	-	150,000	31,050
2001	-	-	150,000	29,400
2002	-	-	150,000	27,750
2003	-	-	150,000	26,100
2004	-	-	150,000	24,600
2005	-	-	150,000	23,250
2006	-	-	150,000	21,900
2007	-	-	150,000	20,700
Totals 1976-2007	$10,584,200	$5,616,507	$6,000,000	$3,281,100

Sources and Methods: See Text.

$10,584,200 and would represent a present value of $5,616,507. A bond interest rate of 5.3 percent has been assumed. This is the rate which Boston municipal bonds presently enjoy.

This schedule of debt service payments, and their present value, may be compared with the developer's payments and their present value, in order to assess the net cost to the City of Boston.

In accordance with the agreement worked out between the Boston Redevelopment Authority and the developer, $6 million of payments would be made to offset, in part, the cost of special project improvements. There would be one payment of $3 million in 1976, and 20 payments of $150,000 spread over a 20-year period, beginning 5 years after project completion, and covering the period 1988-2007. These payments have a present value (1973) of $3,281,000. When related to the present value of debt service payments, the net present value cost of the special project improvements to the City would be $2,335,407.

The Burden on the City's Debt Service and Indebtedness Capacity

Park Plaza public facilities requirements would add only a small margin to the annual flow of capital outlays and debt service payments. Park Plaza's share of the City's capital indebtedness would also be small. In all three aspects, requirements for Park Plaza are readily accommodated within the City's fiscal capacity, and much more than compensated for by the tax revenue which Park Plaza would generate.

Over the ten-year period, 1974-83, public facilities outlays for Park Plaza will total $12.3 million, (including $6.8 million for special project improvements). These will make up 0.9 percent of the City's $1.3 billion 10-year public facilities program to be carried out over this period. Since debt service financing of these outlays will be spread over a longer time period, Park Plaza's share of the City's debt service burden would be small also, and is estimated at less than two percent of the City's debt service payments over the period 1974-83. The City's indebtedness capacity will be rising over this period, and Park Plaza's share of this indebtedness would make up less

than two percent. The City's indebtedness would remain well below its projected indebtedness capacity.*

Public Costs and Benefits to the State

Park Plaza would provide a large spin-off of net tax revenue benefits to the State. Over the 50-year period, 1974-2023, tax revenue benefits to the State would total $183 million, measured in terms of present value, and in dollars at 1973 prices. See Table I-5. The present value of public costs to the State, over the same period, are estimated at $20 million. In effect, for every dollar of public cost, the State would be gaining $9.

Significance of the Margin of Tax Revenue Benefits Over Costs

As indicated in the preceding analyses, Park Plaza would signify a significant margin of tax revenue benefits over public costs. Over and above this finding, scholars differ on the meaning of benefit-cost relationships.

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* Jonathan Gordon, Frederick Pikielek, William Pear, et al., Planning for Boston; Public Facilities and Capital Improvement; The Record, 1960-67; The Revitalization, 1968-72; The Program, 1973-82, Boston Redevelopment Authority and Boston's Public Facilities Department, (Draft Report); see Chapter VII, Financing Boston's Public Facilities and Capital Outlay Program, 1973-82.

Conservative scholars suggest that, since benefits are often overestimated and costs frequently underestimated, a benefit-cost ratio of approximately two is reassuring in the planning of project expenditures. In this sense, Park Plaza amply meets the test of tax benefits and public cost.

Public Costs in Urban Redevelopment; the Innovative Role of Park Plaza

The analysis of public costs and tax revenue benefits, presented in this report, must be considered in the light of the tradition and practice of public subsidies to induce private developers to undertake urban renewal projects of redeeming social value which help meet the sound needs of the City. In the past, the City of Boston has been able to use Federal urban renewal money to subsidize the price of land to developers by absorbing the difference between the cost of land assembly and the lower purchase cost offered to developers both as inducement and as a device to enhance

investment project feasibility. With new Federal urban renewal money no longer available, Park Plaza represents an innovative attempt to induce the private sector to undertake the large scale urban redevelopment needed by the City, without the benefit of direct public subsidies.

One type of indirect subsidy, involving no cost to the City, would be provided; namely, the difference in the interest rate involved in City acquisition of land for urban redevelopment, through the use of a chattel mortgage type of bond, (to be sold to the developer at cost), and the higher market rate of interest available to the developer.

A second type of subsidy might be involved to the extent that public costs, for services and facilities, exceed tax revenue benefits to the City. In this case, it would be important to evaluate whether the redeeming social values of the project, and its contribution to the sound needs of the City, merited the cost of the subsidy. In the past, it has not been possible for the City to carry out land assembly and urban redevelopment without public subsidy.

The findings of the analysis of public costs and tax revenue benefits, here presented, suggest that Park Plaza will be doubly innovative. Park Plaza will show the way to achieve important urban redevelopment goals, (meeting the sound needs of the City by providing new jobs, new housing including housing for the elderly, revival of downtown retail activity, and revitalization of public facilities and urban amenities), and doing this through private sector assumption of costs, including the cost of land assembly. Park Plaza will achieve all of this and also yield significant margins of tax revenue benefits to the City and the State in excess of public costs for services and facilities.

These innovative roles of Park Plaza are possible now because of key factors of strength on which it can draw. These include the favorable underlying growth of the City's economy, recent and prospective, the revitalization of the City as a place to live, with the recent reversal of two decades of population decline, and the large private and public sector commitment to capital construction. These factors make

feasible a private sector role and public tax revenue benefits which would not have been possible a decade ago when Boston was still losing jobs and population and public facilities outlays were at a low ebb. In turn, Park Plaza will further fortify the economy and the amenities of the City of Boston with an important indirect yield in terms of jobs and tax revenue benefits.

Addenda

Subsequent to the presentation of the present report, a number of questions were raised. This addenda takes up these questions, and presents some new, related analyses and information.

1. Question

Isn't it reasonable to assume that many of the revenue sources projected for Park Plaza will not be new to the City of Boston or the State, but will merely represent relocation within these jurisdictions?

Comment

Projected net new revenues assume future growth in employment, income, and population in the City and in the State. In the past decade, Boston gained 60,000 new service activity jobs, and the State gained 300,000. For the future, over the next decade, Boston has a prospect and potential for 75,000 to 100,000 net new jobs, and the State may gain another one-third of a million jobs.* Boston may gain 50,000 population, and the State 600,000. Per capita income, measured in dollars of constant value, could rise by one-third. Boston's planning and development effort is based on these growth prospects.

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* Boston Redevelopment Authority, Research Department, Boston's Development Prospects; Commitment to the City's Future, January 1973.
National Planning Association, Center for Economic Projections, State Economic and Demographic Projections, Washington, D.C.

There is no assurance of growth in jobs, income, and population, however, without a forward looking urban redevelopment effort and a farsighted State approach toward revitalizing urban infrastructure. We have only to look back to the record of the 1950's, when the City of Boston was in full decline in terms of population, jobs, income, and property values, to recognize that the further improvement in the quality of urban life in Boston, will depend not only on favorable national and regional trends, but also on empathetic City and State planning and development efforts.

Our recently conducted surveys of who live and work in the new residential complexes and office towers show significant proportions coming from outside Boston and outside the State.*

State planning policy also projects job growth in Boston. The Regional Framework report of the Boston Transportation Planning Review sees Boston as an area of

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* Thomas O'Brien and Alexander Ganz, A Demographic Revolution: The Impact of Office Building and Residential Tower Development in Boston, Boston Redevelopment Authority, December 1972.
Survey Research Center, University of Massachusetts and the Joint Center for Urban Studies of M.I.T. and Harvard, "Survey of Characteristics of Tenants and Workers in New Residential and Office Towers", Draft Report, June 1973.

concentrated core growth within the metropolitan region, both in response to prospects and potential and as a means of avoiding urban sprawl.

Until recently, population growth lagged job growth in Boston, due, in part, to the shortage of housing for middle and upper income families. Recently conducted surveys of residential construction underway and planned suggest a prospect for accommodating some of this demand.

Park Plaza is a key part of the better future for Boston, and has a vital role in revenue generation. Our recently conducted survey of capital construction in progress shows a large commitment, public and private, to Boston's future. But a major share of the planned investment is in tax exempt categories, - medical and educational institutions, and city, state, federal, and semi-autonomous agency projects -. Park Plaza would pay substantial taxes, much needed by the City of Boston.

2. Question

Could future prospective growth in retail, residential, and office development be accommodated without Park Plaza, or will the construction of Park Plaza itself generate demands which would not occur in the absence of Park Plaza?

Comment

Capital construction underway and planned, as well as longer term development targets for the City Core Area, go well beyond the goals for retail, residential and office construction in Park Plaza.

But Park Plaza, with its replacement of blight in the heart of the City, has a vital role in the "City Core Area Development Plan", now in an advanced stage of preparation. Successful downtown revival and development, with all that this means for jobs and income, is dependent on sequential development processes. As part of the high spine aspect

of Boston's urban design concept, Park Plaza would be an important signal, to private market forces, that Boston's downtown redevelopment is going forward. In the absence of Park Plaza, the City's plan for the development of the Core Area would be set back, and the positive thrust of private market forces, in replacing blight and obsolescence with job and income generating redevelopment, would be blunted.

3. Question

Given the prime location of the property, in Park Square, it would seem unreasonable to assume that there will be no construction in the area between 1974 and 2023, the time frame for the cost-benefit analysis, if the City sponsored Park Plaza project is not adopted. What would be the cost-benefit results of a reasonable hypothesis of private investment in the Park Square area in the absence of urban renewal?

Comment

The hypothesis of no new construction in the absence of urban renewal is not unrealistic, considering (1) the blighted condition of the area, (2) the postwar history of

lack of construction and renovation interest on the part of the present owners, and (3) the long-term decline in property values in the project area. The assessed value of taxable land and buildings in the Parcels A, B, and C area is well below that of 20 years ago, even with a partial recovery since 1965. There has been little new building in the area in recent times. Since 1960, only $1.2 million of building permits have been issued for the area, and this was largely limited to fire damage repair, new signs, and minimal fix-up of some existing structures. As far as the operation of the private market is concerned, the attractiveness of the prime location has been more than offset by the conditions of blight and the perspective for further deterioration.

Nevertheless, for illustrative purposes only, a hypothesis of private sector development without urban renewal has been prepared, together with the implications for public costs and tax revenue benefits. It should be emphasized that there have been no seriously sustained proposals along the lines described below, and there are no realistic set

conditions under which the investment hypothesis described below is likely to take place in fact, without systematic removal of blight.

In this hypothesis, we assume the construction of a major office building of 600,000 square feet on the site now owned by Eastern Gas Associates. The 33,000 square foot site could have a building similar in size to the Keystone Building, if zoning is approved.

A second office building with 150,000 square feet of space, might be built on the site currently occupied by the Trailways Bus Company, and be similar to the One Washington Mall building.

In addition, existing buildings would be renovated sufficiently to raise assessed value by one-fourth.

Two assumptions on gross rental income were adopted, ranging from a square footage rental of $11.75 and a 90 percent occupancy rate, to a rental rate of $13.75 and an occupancy rate of 95 percent. Assessment is projected at 20 percent of gross rental income. New construction would start at the end of 1974 and be completed by 1977. Renovation on the other properties in the area would be

started and completed over the same period.

In the non-urban renewal "build" alternative, as described above, Parcels A, B and C would continue to have 41 residents, as at present, the number of workers would rise from the present level of 1,500 to 4,500, with office workers displacing bus terminal employees, and other land uses would remain the same.

Under the non-urban renewal build alternative, net tax revenue benefits to the City would range from $2.2 to $2.5 million, in 1983, and have a present value of $30 to $34 million over the period 1974-2023. See Table I-9. These net revenue benefits to the City of Boston would be larger than that in the case of a no-build alternative (see Table I-1). In comparison with Park Plaza, however, net benefits under a non-urban renewal build alternative would be only one-third as large, assuming that the private sector could be encouraged to invest in the project area without removal of blight.

Table I-9

PARK PLAZA;
PUBLIC COSTS AND TAX REVENUE BENEFITS;
TWO "BUILD" ALTERNATIVES

	Public Costs	Tax Revenue Benefits	Net Benefits
	(Millions of Dollars, at 1973 Prices)		
I. Non-Urban Renewal Build Alternative Parcels A, B, & C, 1983 Direct and Indirect			
Tax Yield A	2.1	4.3	2.2
Tax Yield B	2.1	4.6	2.5
II. Park Plaza, 1983 Direct and Indirect			
Tax Yield A	6.0	12.2	6.2
Tax Yield B	6.0	14.1	8.1
III. Non-Urban Renewal Build Alternative Parcels A, B, & C, 1974-2023, Present Value Direct and Indirect			
Tax Yield A	31.6	61.3	29.7
Tax Yield B	31.6	65.5	33.9
IV. Park Plaza, 1974-2023 Direct and Indirect			
Tax Yield A	69.0	149.3	80.3
Tax Yield B	69.0	170.8	101.8

Sources: I & III
See Appendix Table X-1 & X-2
II & IV
See Tables VI-1 and VII-1

4. Question

Though the projected increase in the assessed value of property in adjacent neighborhoods might raise the property tax yield to the City, would this not also involve a bidding away of the housing of low and moderate income families, thereby signifying housing relocation and other public costs, apart from the social costs entailed?

Comment

In general, growth in jobs, income, and housing will enhance the mobility and broaden housing choice for Boston's families. This is what growth in Boston has signified in the recent past. From 1960 to 1970, the number of poor families in Boston was reduced by one-fourth. New housing construction of 25,000 dwellings, since 1960, the equivalent of approximately 10 percent of the City's housing stock, replaced a similar volume of demolished housing.

A substantial number of new dwelling units for low and moderate income families, some 9,600 units, are under construction and planned. The City is marshalling a new program to rehabilitate an even larger number of dwelling units; a program which may ultimately benefit one out of four of the City's dwellings. The result will be more and better housing for low and moderate income families, not less.

5. Question

If capital investment in Boston is rising, in relation to the 1960's, is Boston's property tax base not expanding at a rapid rate? What was the value of the City's tax base in 1950, 1955, 1960, 1965, 1970 and 1972? What expansion is projected for 1975 and 1980 with Park Plaza? Without Park Plaza?

Comment

Capital investment in Boston has been rising significantly, from annual rates of approximately $600 million, in 1960, to an estimated $1 billion in 1972, with the revitalization of the City's economy. See Table 1.

The assessed value of taxable property, in Boston, fell, from 1950 to 1963, when the City was in general decline with large losses of jobs and population. See Table 2. Since then, assessed values have been rising, but, only modestly, from $1,445 million, in 1963, to $1,716 million, in 1972, representing a growth of one-fifth over the 9-year period.

Table I-10

CAPITAL INVESTMENT, PUBLIC AND PRIVATE, IN THE CITY OF BOSTON
1960-72, ACTUAL; AND 1975 AND 1980, TARGETS
(Millions of Dollars at 1970 Prices)

Year	Total	Private	City of Boston	State, Federal Government And Semi-Autonomous Agencies
1960	$585*	$472*	$13	$100*
1961	607	487	10	110
1962	678	550	17	111
1963	633	497	23	113
1964	719	575	21	123
1965	752	600	20	132
1966	821	661	27	133
1967	850	665	31	153
1968	856	678	38	140
1969	873	683	36	154
1970	891*	689*	58	144*
1971	940*	715*	73	152*
1972	$1,000*	$750*	$82	$168*
Average Annual Rate of Investment				
1960-67	$706	$563	$20	$122
1968-71	890	691	51	148
1972	1,000	750	82	168
Projected				
1975	$1,262	$975	$112	$175
1980	1,635	1,270	145	210

* Estimated

Source: Virginia Metcalfe, Peter Menconeri, et al., Boston Redevelopment Authority, Research Department, Boston's Development Prospects; Commitment to the City's Future: Report of a Survey of Capital Investment Projects and Programs, Underway, Planned and Proposed, January 1973

Sources: Jonathan Gordon, Boston Redevelopment Authority, Research Department, Fiscal Aspects of the City of Boston Economy, (Draft Report).

Jonathan Gordon, Frederick Pikielek, et al., Boston Redevelopment Authority, Research Department, Planning for Boston; Public Facilities and Capital Improvements; The Record 1960-67; The Revitalization, 1968-72; The Program, 1973-82, (Draft Report).

Virginia Metcalfe and Peter Menconeri, Boston Redevelopment Authority, Research Department, Investment in Boston, Evolution, Prospects, Potential, Policy Strategy, Targets, Program, (Draft Report).

Table I-11

ASSESSED VALUE OF TAXABLE PROPERTY,
IN THE CITY OF BOSTON, 1950-72 ACTUAL,
1975 AND 1980 PROJECTED
(Millions of Dollars)

Year	
1950	$1,568
1955	1,542
1960	1,466
1963	1,445
1965	1,490
1970	1,617
1972	1,716
Projected	
1975	1,955
1980	2,835

Sources: Years 1950-1970 -
City of Boston and County of Suffolk, Auditing Department, Annual Report 1970, Schedule G-2
Year 1972 -
City of Boston Assessing Department

Projections -
Boston Redevelopment Authority, Research Department, Planning for Boston; Public Facilities and Capital Improvements; The Record 1960-67; The Revitalization, 1968-72; The Program 1973-82 (Draft Report).

A large part of Boston's investment does not show up in the taxable property base. This comes about because a major share of the City's investment is made up of (1) public capital improvements, (2) facilities of tax-exempt medical, higher educational, and philanthropic institutions, and (3) tax-abated non-residential construction. An estimated 54 percent of the City's real property is tax exempt, and this share has been growing.

In view of the larger levels of capital construction presently underway and planned, and longer-term goals, very substantial new investment is foreseen over the next ten years. (See Table 1.) But again, major components of the planned and projected investment will be made up of capital construction in tax-exempt medical complexes and institutions of higher education, public facilities and capital improvements, and in tax-abated non-residential construction.

Even so, a two-thirds growth in the assessed value of taxable property, between 1972 and 1980, is anticipated. See Table 2.

With tax abatement under Massachusetts Law 121A, Park Plaza would add an estimated $62 million to the assessed value of taxable property. This would be equal to 23 percent of the growth in assessed values actually experienced from 1963 to 1972, and 5.5 percent of the growth projected in the 1972-80 period. Of course, the projected growth of the assessed value of taxable property in Boston is conjectural, and dependent on Park Plaza and its significance for City development, in part.

II. PARCELS A, B, AND C NOW; BENEFITS AND COSTS IN 1973

To provide a proper basis for evaluating the fiscal impact of the proposed Park Plaza development, the tax revenue benefits and public costs presently associated with the area designated for Stage I of the Park Plaza development (Parcels A, B, and C or reuse parcels 1, 2, and 3) were analyzed. Estimates were made of the annual property tax, State sales, meal, business, and personal income tax now generated by the buildings and property, business activity, residents and workers in the proposed development area. Similarly, detailed estimates were made of the current annual costs to the City of providing public services and facilities for this area.

This analysis indicates that the total annual City and State tax revenues presently generated in Parcels A, B, and C is approximately $3.6 million, with the City's share of these tax revenues estimated to be $2.0 million. On the cost side, it was determined that the City currently spends $1.5 million annually to provide public services and facilities for the development area.

Profile of Park Plaza Now

The A, B, and C parcels presently contain about 200,000 square feet of ground floor space and 500,000 square feet of space in upper stories. A small number of resident households and a wide variety of commercial uses now occupy this space.*

Over 200 business establishments are located in the area and these include many small restaurants and retail operations and several lounges, bookstores, car rental agencies, garages, commercial artists, architects, attorneys, and miscellaneous service establishments. Approximately 1,500 workers are employed in these enterprises.

According to the 1973 Boston Police List, there are currently forty-one people age 17 and over living on the property in Parcels A, B, and C.** Six of these are married and the remaining thirty-five are unrelated. Twelve of the

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* Boston Redevelopment Authority, Park Plaza Relocation Report.

Boston Redevelopment Authority, Environmental Impact Statement: Park Plaza Urban Renewal Project, Section B,"Description of the Project Area".

** Only 14 people listed as area residents in the BRA Relocation Report appear on the 1973 Police List. This would seem to indicate a high degree of transiency in the area.

forty-one individuals now residing in the area have moved into the area within the last year, six from outside the State and two from another location in Boston. The average age of residents is 35 and the age distribution indicates almost half of the residents are in their 20's and 25 percent are in their 30's. The occupational mix of current residents comprises several students, housewives, managerial, clerical, secretarial, and various professional personnel, and assorted types of retail and service employees. Total annual income of the forty-one residents is estimated at $300,000 based on their occupational composition.

Tax Revenue Benefits, Total

The components of the $3.6 million City and State revenues currently generated by Parcels A, B, and C are shown in Table II-1. A description of the estimating procedure used to derive each of the tax revenue figures follows.

Table II-1

CITY AND STATE TAX REVENUES GENERATED BY PARCELS A, B AND C IN 1973
(Millions of Dollars)

Property Tax	$1.8
Sales and Meal Tax	.6
Personal Income Tax	.8
Business Tax	.3
Total	$3.6*

Property Tax

Current property tax yield in the development area was determined by applying the current tax rate ($196.70 per $1,000 assessed value) to the assessed valuation of properties in the A, B, and C parcels. The total 1972 assessed valuation of taxable real estate in this area was $9.4 million. At the current tax rate, these properties yield $1.8 million in property tax revenues for the City.

Sales and Meal Tax

State sales and meal tax amounting to $633,000 is presently produced by the business activity and restaurant sales in the area. This figure was derived by first estimating the current dollar amount of annual retail sales in the A, B, and C parcels. This was done by applying an annual average retail sales per square feet coefficient to the

* Figures do not add due to rounding.

total amount of retail space now occupied in the project area.

Average annual retail sales in the Park Plaza area are thought to run about $90 per square foot.* Based on the BRA study of existing establishments conducted for the Relocation Report, it is estimated that 260,000 square feet of retail space is located in the Park Plaza parcels, with an average occupancy rate of 90 percent. Applying the average annual retail sales per square foot to the estimated amount of occupied retail space, retail sales in parcels A, B, and C were estimated to be about $21.1 million a year. On the basis of an assumed average 3% tax rate, the amount of State sales and meal tax produced by this $21.1 million sales volume is $633,000 annually.**

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* By comparison, retail establishments in Boston's Central Business District and Back Bay area currently average $100 annual sales per square feet.

** The current State sales and use tax is 3% and the tax for meals over $1 and alcoholic beverages is 5%. Though clothing sales (which are exempt except for items over $175) do account for a portion of current retail sales in the area, part of the current retail sales also represent restaurant receipts for food and alcoholic beverages subject to the higher 5% rate.

Personal Income Tax

State income tax currently derived from the residents and employees in Parcels A, B and C is thought to be about $820,000 annually. Income tax from the residents and two main groups of employees was calculated separately.

Personal State income tax obtained from the present residents of the parcels is estimated to be $15,000. Based on information from the 1973 Police List concerning age and occupation of the residents and average wage levels for various occupations*, the total annual income of the residents was estimated to be approximately $0.3 million. Applying what is thought to be the average effective State income tax rate of 5 percent**, the $15,000 estimate of State income taxes currently paid by project area residents was obtained.

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* Wages figures for different occupations were obtained from the following sources and inflated to 1973 prices to estimate employee income in the Park Plaza area: U.S. Dept. of Commerce, Bureau of the Census, 1967 Census of Business, Selected Services Area Statistics, Mass. U.S. Dept.of Commerce, Bureau of the Census, 1967 Census of Business, Retail Trade Area Statistics, Mass. U.S. Dept. of Labor, Bureau of Labor Statistics, Area Wage Survey, Selected Metropolitan Areas 1969-70, Bulletin 1660-91, 1971.

** The State tax on regular personal income is a flat 5%, though a portion of total income, due to allowances and deductions, is not taxable. Certain types of income (interest, dividends, etc.) are taxed at a higher rate. It is thought, therefore, that 5% represents a reasonable average effective rate.

To estimate the personal income taxes generated by the employees currently working in the Park Plaza development area, it was assumed that total employee compensation of retail and service workers is the same percentage of total retail and service industry output as was found on the national level in the 1963 Input-Output Study conducted by the U.S. Department of Commerce, Office of Business Economics.* This study indicated that the ratio of employee compensation to total output was .421 for wholesale and retail trade and .347 for the hotel, personal, and business services group. The average of these coefficients, .384, was applied to the total estimated volume of retail sales and certain retail-type service establishments in Parcels A, B, and C and an estimated employee compensation of $9.8 million in these establishments obtained. Taxed at 5%, this income represents $0.5 million of State personal income tax revenues.

Total annual income of workers in the office space and miscellaneous professional and business service establishments now located in Parcels A, B and C was estimated using

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* Albert J. Walderhaug, "The Composition of Value Added in the 1963 Input-Output Study, "Survey of Current Business, April 1973.

information provided in the relocation report concerning types of firms, number of employees, and square feet of space, and the wage levels indicated in the sources cited earlier. Total annual income of this group of present Park Plaza employees is estimated to be $6.3 million and to generate, at the 5% rate, $315,000 of State income taxes.

Business Tax

State taxes currently obtained from the business activities located in Parcels A, B, and C are estimated to total $0.3 million annually. To obtain this estimate, it was assumed that, on the average, taxable profits represented 8% of gross business revenues and that these are subject to an average effective tax rate of 8 percent.*

Current annual revenues of retail establishments in the project area were earlier estimated to be $21.1 million, and certain service establishments were estimated to produce an additional $4.4 million. Taxing 8% of these $25.5 million annual revenues at an average 8% rate yields $163,200 in State business taxes each year.

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* Different rates and various types of State business taxes actually apply to general corporations and specific types of companies (banks, insurance companies, etc.). For simplicity sake, it was assumed in the present analysis that all business firms now located in parcels A, B, & C are subject to State tax and one rate, 8%, thought to be a reasonable average of the various existing types of effective rates, was used to derive the estimates of annual State tax.

Annual revenue of the remaining group of Park Plaza establishments, office and certain professional and business services, was calculated on the basis of the relationship between total output and employee compensation. A coefficient was derived from the 1963 Input-Output study which was thought to represent the ratio of employee compensation to total output in these establishments. This coefficient, .30*, was applied to the earlier estimate of $6.3 million annual employee income in these firms and their annual total revenues were estimated to be $21 million. Assuming 8% of these gross revenues are taxed at an average 8 percent rate, $134,400 State business tax revenues are now generated annually by these establishments.

These calculations and the resulting estimates of the City and State tax revenues now produced by Parcels A, B, and C in the Park Plaza development area are summarized in Table II-2.

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* This coefficient, .30, actually represents an amalgamation of the ratios of employee compensation/total output for the finance, insurance, real estate and business services industry groups.

Table II-2

CITY AND STATE TAX REVENUES
PARCELS A, B AND C 1973

	Assessed Value, Sales, Taxable Income	Effective Tax Rate Applied	Current Tax Yield *
Property Tax	$9.4 million	$196.70/$1,000 Assessed Value	$1.8 million
Sales and Meal Tax	21.1 million	3%	.6 million
Personal Income Tax			
Employees	16.1 million	5%	
Residents	0.3 million	5%	.8 million
Business Tax	3.6 million (8% of $46.5 million)	8%	.3 million
		Total	$3.6 million

Boston's receipts of these $3.6 million of tax revenues include the property tax and a portion of the State sales and meal taxes and the business and personal income taxes. To calculate Boston's receipts, 15 percent, Boston's share of the sales-tax-based State aid, was applied to the sales and meal tax revenues and 11 percent, Boston's share of the State population, was applied to the business and personal income taxes. Boston's receipts of the State and City tax revenues now produced by parcels A, B, and C were estimated to be $2 million. The components are shown in Table II-3.

* Figures do not add due to rounding.

Table II-3

BOSTON'S RECEIPTS OF TAX REVENUES NOW PRODUCED BY PARCELS A, B AND C

	Share		Receipts
Property Tax	100%		$1.8 million
Sales and Meal Tax	15%		.1 million
Personal Income Tax	11%		.1 million
Business Tax	11%		
		Total	$2.0 million

Public Costs of Park Plaza Area Unimproved in 1973

The area in the proposed Park Plaza development currently entails public costs to the City estimated at $1.5 million. In computing these public costs, it was assumed that certain public costs of Parcels A, B, and C with their present non-residential character, are best represented by the share of the parcels in the total City assessed value of taxable property. The Park Plaza development area paid an estimated $1.8 million in property taxes in 1972, in comparison with the city-wide total of $337 million. The $1.8 million paid represented .53% of the city total. This coefficient of 0.53% was used in computing the following direct public costs:

Police Protection Capital Cost - E25*
Police Protection Operating Cost - E26
Fire Protection Capital Cost - E27
Fire Protection Operating Cost - E28
Water Supply Capital Cost - E36
Water Supply Operating Cost -E37
Sewerage Capital Cost - E39
Sewerage Operating Cost - E40
Surface Transportation System Capital Cost E49
Surface Transportation System Operating Cost

The current project area contains many buildings of non-fireproof construction, an inadequate street system, and several bars on the police list of most troublesome night spots. Though these represent real costs to the City, they have not been included in the estimates here presented.

Other costs were estimated on a per capita basis. This was done in the following cases:

Health Service System Capital Investment Costs - E20
Health Service System Operating Costs - E21
Parks Capital Expenses - E30
Parks Operating Expenses - E31
Cultural Services Operating Expenses - E32
Solid Waste System Operating Expenses - E39
Transit System Capital Investment Costs - E46
Transit System Operating Expenses - E47

In addition, General Municipal Government Costs, both operating and capital, were also estimated. These were

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* Designation numbers are those used in Environmental Impact Statement-Park Plaza Urban Renewal Project, Saratoga Associates, May 1973.

calculated on the basis of the relationship between General Municipal Government costs to direct costs estimated in the first year after completion of Park Plaza. See Chapter IV, Table IV-1. Following is a summary of the estimating base for each public cost category.

Housing Capital Investment Costs - E16
Housing Subsidy Expenses - E17

Because the area currently does not contain any public housing, no current costs are attributable to public housing capital investment costs or subsidy costs.

Educational System Capital Investment Costs - E18
Educational System Operating Expenses - E19

No children of school age presently live in the area, hence no education costs are attributable.

Health Service System Capital Investment Costs - E20
Health Service System Operating Expenses -E21

There are currently three people in the project area over age 62*. Following the same assumption used in projecting Park Plaza's 1983 cost, a figure of 9 qualifying people using 12 patient days can be applied. Twelve patient days at $100 per day = $1,200. Allowing for treatment at private hospitals, a figure of $600 is used as the estimated operating costs. Because of the small number of people in the area over 62, the estimated impact

* Source: 1973 City of Boston Police List

on capital investment costs for public health service systems is negligible.

Social Service System Capital Investment Costs -E22
Social Service System Operating Expenses -E23
Cultural Services Capital Investment Costs -E24

No costs are currently attributable to any of the above.

Police Protection Capital Investment Costs -E25
Fire Protection Capital Investment Costs -E27

In 1973, $819,000 was estimated for police department capital investment costs city-wide. The area's share of these costs based on .53% as its share of City assessed value of taxable property, is estimated at $4,340 in 1973.

Fire Department capital expenditures in 1973 are estimated at $546,000 city-wide, for a project area share of $2,893.

Police Protection Operating Expenses -E26
Fire Protection Operating Expenses -E28

1973 Police operating expenses are estimated at $44,589,000 city-wide. Using .53% as the area's share, operating costs would be $236,321.

1973 Fire protection operating expenses are estimated at $29,726,000. The area's 1973 share for Fire Department operating expenses is estimated at $157,547.

Parks Capital Investment Costs -E30

1973 Park and Recreation programmed capital expenditures are estimated at $8,500,000 or $13.26 per person with a population of 641,000. For the project area, with an estimated daytime population of 1,541, the estimated cost is $20,433 in 1973.

Parks Operating Expenses -E31

1973 Parks and Recreation Operating expenses city-wide are estimated at $7,5000,000. The area's share based on the daytime population of 1,541 is $18,029. Adding a factor of two because of the area's proximity to the Common and the Public Garden, this share would rise to $36,058.

Cultural Services Operating Expenses -E32

The 1972 Summerthing operating budget was $463,000 or 62 cents per person. The area's share with 41 permanent residents is $25.

Solid Waste System Capital Investment Costs -E33

No costs are currently attributable to the area.

Solid Waste System Operating Expenses -E39

1972 weekly trash collection charges for the area averages to $18.61 per year per resident. Trash collection costs for the 41 residents are $763 annually.

Water Supply Capital Investment Costs -E36
Sanitary Sewerage Capital Investment Costs -E39

The 1973 capital expenditure program for water is $1,500,000. The project area's share of this is estimated at $7,950.

The 1973 sewer capital expenditure program is estimated at $1,650,000 with the project area share of $8,745.

Water Supply Operating Expenses -E37

Boston's 1973 water operating cost for water supply is estimated at $19,946,000. The project area share of .53% was used to determine the attributable cost in 1973 as $105,715.

Sewerage Operating Expenses -E40

The 1973 estimated sewerage operating cost is estimated at $19,946,000 city-wide. Applying the same factor of .53%, the area's share of operating cost is $57,651.

Storm Drainage Operating Expenses -E42

No costs are estimated.

Transit System Capital Investment Costs -E46

Improvements of $88 million have been programmed for the Green Line. It is assumed that the area generates at least 2% of all Green Line trips and on that basis a cost can be imputed to the project area as its share of the $88 million. This would be 2% of the $88 million or $1,760,000. This

cost has been spread out over 20 years for a 1973 capital expenditure cost of $88,000.

Transit System Operating Expenses -E47

The project area currently generates some 1,600 Green Line passengers. Using the 1970 MBTA ridership and operating costs, the average operating cost per passenger is 71 cents. Roughly 15 percent of the Green Line riders pay a 25 cent fare for a subsidy cost of 46 cents or $110 per day. Some 85 percent of the riders would pay a 45 cent fare for a subsidy cost of 26 cents per fare or $354 per day. Total per day cost is $464. Assuming 250 workdays, this entails an annual operating cost of $116,000.

Surface Transportation System Operating Expenses -E49
Surface Transportation System Capital Expenses

Operating expenses for the Public Works Department in 1973 are estimated at $12,460,000. The project area's share of this is .53% or $66,038.

Estimated capital expenditures for the Department of Public Works in 1973 are $5,650,000 for an estimated project area share of $29,945.

Table II-3

SPECIFIC PUBLIC COSTS FOR PARK PLAZA AREA PUBLIC SERVICES AND FACILITIES (1973)
(Thousands of Dollars at 1973 Prices)

Services & Facilities	Operating Costs	Capital Costs	Total Costs
Public Housing	0	0	0
Public Educational System	0	0	0
Public Health Service System	1	0	1
Public Police Protection	236	4	240
Public Fire Protection	157	3	160
Public Parks Expense	36	20	56
Public Cultural Services	*	0	*
Public Solid Waste System	1	0	1
Public Water Supply	106	8	114
Public Sewerage	58	9	67
Public Transit System	116	88	204
Public Surface Transportation System	66	30	96
Direct Costs, Sub-Total	777	162	939
General Municipal Government Costs	404	116	520
Public Costs for Service and Facilities, Total	$1,181	$278	$1,459

* = less than $500.

III. PARK PLAZA: TAX REVENUE BENEFITS IN THE FIRST YEAR AFTER COMPLETION, 1983

Park Plaza will generate tax revenue benefits, direct and indirect, for both the City and the State. Tax benefits will flow from the business enterprises, the residents and the workers in Park Plaza. Through purchases made by the firms, the residents, and workers, Park Plaza will also stimulate other sectors of the City's economy, increase profits and wages, and, thereby, indirectly generate additional tax revenues.

City and State tax revenue flowing directly and indirectly from Park Plaza, in the year following completion, are projected to range between $29.8 and $31.7 million. Boston's share of these taxes, comprising the property tax and a portion of the State tax receipts, is expected to be $12.2 to $14.1 million, leaving net receipts of $17.6 million for the State. A description of the sources and methods used to estimate the components of these direct and indirect tax revenue benefits follows.

Tax Revenue Benefits Generated Directly by Park Plaza

Anticipated City and State tax revenues which will be generated directly from the properties and buildings, business activity, residents and workers in Redevelopment Parcels A, B, and C (Reuse Parcels 1, 2, and 3) of the Park Plaza Project, in the year following completion of the development project, were estimated. Projected revenues, including the yields of property taxes, sales, meal, and room occupancy taxes, business taxes, and the taxes on personal income earned by both residents and workers in the Park Plaza area, total $18.8 to $20.7 million for the City and State. Boston's share of these revenues is expected to be $7.1 to $9.0 million, leaving the State with $11.7 million of the revenue generated.

Property Taxes

Property taxes which will be generated directly by Park Plaza were calculated on a percentage-of-gross-income basis for each component of the project except the hotel, for which the more typical tax-per-room approach was applied. Two estimates, based on different assumptions concerning rent levels and occupancy rates, were obtained. These estimates

of property tax revenue yield, $5.6 million and $7.5 million, at the current tax rate, indicate the sensitivity of future Park Plaza property tax revenues to the productivity, rentals and occupancy rate of the properties in the project area and the difficulties of projecting future tax revenues from the project at this time.

Two possible sets of rental structures were hypothesized, one slightly higher than the other, and were applied to the space and dwelling unit project specifications to estimate gross rentals for the office, retail, residential, and parking components of the project. Tax revenues were computed by adjusting gross rentals for vacancy factors and applying a 20 percent tax rate to the retail, office, residential and parking figures, and a per-room tax to the hotel component. The calculations and assumptions involved and the resulting estimates of property tax revenues are shown in the following tables. (See Table III-1A and 1B.)

Table III-1

PROPERTY TAX YIELD ALTERNATIVES OF PARK PLAZA
IN THE FIRST YEAR AFTER COMPLETION, 1983

A. Tax Yield A

Project Component	Annual Average Rent per Sq.Ft./D.U./Space[a]	Total Annual Gross Rental[b]	Estimated Annual Taxes (20% of Gross Rental)	
Retail - 500,000 sq.ft.	$11.75	$4.5 million	$.9 million	
Office - 1.1 million sq.ft.	11.75	9.9 million	2.0 million	
Residential - 1,650 dwelling units	6,000	8.9 million	1.8 million	
Parking Facilities - 3,000 spaces	$1,000	2.7 million	.5 million	
Hotel-800 rooms plus related retail space[c]			.4 million	$.9 M.
		Total	$5.6 million	

[a] Projected retail and office space was adjusted to reflect "rentable" space assumed to be 85% of total.

[b] Projected gross rental income for retail, office, residential and parking was adjusted to reflect 90% occupancy rate.

[c] Assumes an annual tax of $500 per room.

Table III-1 (Continued)

B. Tax Yield B

Project Component	Annual Average Rent per Sq.Ft./D.U./Space[a]	Total Annual Gross Rental[b]	Estimated Annual Taxes (20% of Gross Rentals)	
Retail - 500,000 sq.ft.	$13.75	$5.8 million	$1.2 million	
Office - 1.1 million sq.ft.	13.75	12.2 million	2.5 million	
Residential - 1,650 dwelling units	7,200	11.3 million	2.3 million	
Parking Facilities - 3,000 spaces	1,250	3.6 million	.7 mill.	$1.5 Mill.
Hotel[c] - 800 rooms plus related retail space			.8 million	
		Total	$7.5 million	

[a] Projected retail and office space was adjusted to reflect "rentable" space assumed to be 85% of total.

[b] Projected gross rental income for retail, office, residential and parking was adjusted to reflect a 95% occupancy rate.

[c] Assumes an annual tax of $1,000 per room.

Sales, Meal, and Occupancy Tax

State sales, meal, and occupancy taxes associated with the activities which will be located in Stage I of Park Plaza were estimated by utilizing the sales and revenue projections contained in the retail and hotel market studies which were conducted for the project.

Based on the Gladstone "Retail Opportunities" study and other sources, productivity levels of $145 sales per square foot can be expected for the retail space in the Park Plaza A, B, and C. parcels.* Assuming a 90% occupancy rate, the 500,000 square feet of retail space programmed for the first stage of development should generate $65¼ million retail sales in the first year after project completion. Applying the 3% sales tax rate, the projected volume of sales should produce almost $2 million of State sales tax revenues. Though clothing sales, which are exempt from the 3% sales tax, will account for a portion of the total retail sales, some of the Park Plaza retail space will be occupied by restaurants whose sales will be partly subject to the higher (5%) meal and alcoholic beverage tax rates. The 3% rate was therefore thought to reflect the average rate which might apply to total Park Plaza retail sales.

According to the Helmsley-Spear "Proposed Park Plaza Hotel" report, an average room charge of $45 and a vacancy

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* Gladstone Associates, Retail Opportunities: Park Plaza Site, prepared for Boston Urban Associates, August 1971.

rate of 25 percent can be expected for the hotel to be constructed in Stage I.* Under these criteria, roughly 600 of the 800 rooms proposed for the hotel will be occupied on an average and the room charges generated daily by the entire hotel should be about $27,000. Annually, these room charges should amount to $9.86 million, which would generate, at the 5.7 percent rate, $560,000 in state hotel occupancy taxes. The 20,000 or so square feet of restaurant and cocktail lounge space in the hotel, plus the banquet and entertainment facilities, should generate an additional $3 million sales which would add another $150,000 annually to State revenues from meal, alcoholic beverage and cigarette taxes. See Table III-2.

Table III-2

SALES, MEAL, AND ROOM OCCUPANCY TAX DIRECTLY ASSOCIATED WITH STAGE I OF PARK PLAZA

Stage I Project Component	Annual Average Sales/Sq. Ft., Charges/Room	Total Annual Sales and Room Charges[a]	Applicable Tax Rate	Estimated Annual Taxes
Retail-500,000 sq.ft.	$145	$65.25 Mill.	3.0%	$1.96 Millions
Hotel-800 Rooms	45	9.86 Mill.	5.7%	560,000
20,000 sq. ft. restaurant plus banquet, entertainment facil.	145	3.0 Mill.	5.0%	150,000
		Total Tax Revenue		$2.7 Millions

[a] Adjusted for 90% occupancy of retail space and 75% of hotel rooms.

*Helmsley-Spear, Inc., Hospitality Division, Proposed Park Plaza Hotel: Boston, Mass., prepared for Boston Urban Associates, July 1971.

Personal Income Tax

To estimate the state income tax revenues which will be derived from Park Plaza residents, it was assumed that their income distribution will be identical to that of the residents of Charles River Park, Prudential Towers, and Harbor Towers, as surveyed by the Boston Redevelopment Authority* and Gladstone Associates**. By applying this distribution, adjusting for a 90% occupancy rate, and adding a factor for growth in real income, the total income of Park Plaza rssidents was determined. A tax rate of 5 percent was applied to the total income figure to obtain the estimate of State income taxes that would be paid by Park Plaza residents in the year following completion of Stage I. This estimate is $2 million.

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* Thomas O'Brien and Kathi Rook, Boston Redevelopment Authority, The Prudential Towers and Charles River Park Apartments: The Effect of High Rise on Boston's Population, July 1970.

** Gladstone Associates, Luxury Rental Opportunities: Park Plaza Site, prepared for Boston Urban Associates, July 1971.

An estimate was made of the income tax which the State will obtain from the employees who will work in the 1.1 million square feet of Park Plaza office space, by applying a 90% occupancy factor and a coefficient of 225 square feet per worker, and by assuming that the occupational composition and household income distribution of workers will resemble that of similar office buildings in Boston. Employee income was computed by applying the income distribution found in a recent survey of Boston's office workers and adjusting for real income growth.* Total Park Plaza office employee income was estimated to be $90 million, which, at a tax rate of 5 percent, should yield $4.5 million in State income taxes.

Income tax yields which will be generated by the retail and hotel employees in Park Plaza was estimated by assuming that total employee compensation will be the same percentage of total output as is reported in the national Input-Output study conducted in 1963 by the U.S. Department of Commerce, Office of Business Economics.** (The ratio of employee

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* Survey Research Program, University of Massachusetts, Boston, survey of office workers performed during January, 1973, for the Boston Redevelopment Authority.

** Albert J. Walderhaug, "The Composition of Value Added in the 1963 Input-Output Study", Survey of Current Business, Washington, D.C., April 1973.

compensation to total output in the hotel and personal services industry was .347 and the ratio for the entire trade industry was .421.) Using projected sales to approximate total output, the total amount of employment compensation, in the retail component, of Stage I was estimated to be $27 million, and, in the hotel component, was calculated to be $4 million. The $31 million total employee compensation in the retail and hotel components of Park Plaza should generate, at the 5 percent tax rate, about $1.5 million in State income tax.

Taxes on the profits of developers of the Park Plaza project will provide an additional source of State revenues. Since there is a good possibility that a 121A Urban Redevelopment Corporation will be established to carry out the project, stipulations of the State 121A law were utilized to estimate taxable income and expected tax revenues.

According to State law, no more than 90 percent of the cost of a 121A project can be raised by borrowing and the remainder may be raised by sale of stock of the corporation. Stockholders of a 121A corporation are limited

to a 6 percent annual return on the par value of the stock. Assuming that borrowing will finance the allowable maximum of 90 percent of the $260 million total Park Plaza cost, $26 million would be the par value of the maximum amount of stock which could be issued to raise the other 10 percent of total costs. Stockholders would be limited to a 6 percent return of $1.56 million on the $26 million total par value. Taxed at the 9 percent rate applicable to dividends, this dividend income of the Park Plaza 121A shareholders would produce approximately $140,000 of State revenues in the year following completion of the project.

Total personal income taxes which will be contributed to the State by persons who will live or work in Park Plaza and shareholders of the 121A Corporation, upon completion of Stage I, are approximately $8.2 million. See Table III-3.

Table III-3

STATE INCOME TAXES DIRECTLY ASSOCIATED
WITH STAGE I OF PARK PLAZA

Stage I Project Component	Total Estimated Income of Employee and Resident Households[a]	Assumed Average Effective Tax Rate	Estimated Annual Taxes
Residential-1650 dwelling units	$40 million	5%	$2 million
Office-1.1 million sq.ft.	90 million	5%	4.5 million
Retail-500,000 sq.ft.	27 million	5%	1.35 million
Hotel-800 rooms plus restaurants, banquet, entertainment facilities-20,000 sq.ft.	4 million	5%	.2 million
121A Corporation Shareholders	1.56 million	9%	140,000
		Total Tax Revenue	$8.2 million

[a] Estimates account for 90% occupancy factor and price change.

Business Tax

Most of the revenues generated from the expected levels of economic activity in Park Plaza will be subject to State business taxes of some form, i.e., taxes on general corporate business, security corporations, insurance companies, savings institutions and commercial banks. A rough estimate was made of the total business taxes which will be generated directly by Park Plaza by assuming: a) that practically all business in the project area will be subject to some form of State taxation; b) that taxable returns or net income of these firms will average about 8 percent; and c) that this return will be subject to an effective State business tax rate averaging 8 percent.

The expected sales volume of the retail space and hotel, as mentioned earlier, is expected to be about $78 million in the first year after completion of Stage I. Assuming 8 percent of this represents taxable net income which is subject to an 8 percent tax rate, the State tax revenues which will be contributed by the firms engaged in the retail and hotel activities will be roughly $.5 million.

It can be assumed that the types of firms which will locate in the Park Plaza office space will resemble those in the Prudential and Government Center office buildings. Many will serve as headquarters or provide personal and business services and a large number will fall under the finance, insurance, real estate industry category. The national Input-Output information was again utilized, this time to convert the estimate of total employment compensation associated with the Park Plaza office space to an estimate of the related output of the firms located there. According to the OBE study, employee compensation in finance and insurance was .412 of total output, in business services it was .278, and for real estate it was .017. A middle-range ratio of .30 was thought to be appropriate for the expected Park Plaza office space industry mix and was applied to the total employee compensation figure, earlier estimated to be $85 million. Total output or gross revenues of the firms located in the Park Plaza office space was calculated in this way to be $280 million. Assuming that 8 percent of these revenues are net taxable income and that the 8 percent tax rate applies, State business

taxes that are expected from the Park Plaza office space will amount to approximately $1.8 million.

Total State business income taxes which will be generated directly by firms which will be operating in the Park Plaza Stage I area are $2.3 million. See Table III-4.

Table III-4

STATE BUSINESS TAX DIRECTLY ASSOCIATED WITH STAGE I OF PARK PLAZA

Stage I Project Component	Annual Revenues[a]	Taxable Income[b]	Assumed Average Effective Tax Rate	Estimated Annual Taxes
Retail-500,000 sq. ft.	$65.25 M.	$5.22 M.	8%	$ 420,000
Hotel-800 rooms	9.86 M.	.79 M.	8%	60,000
Restaurants, Banquet, Entertainment Facilities-20,000 sq. ft.	3.0 M.	.24 M.	8%	20,000
Office-1.1 million sq. ft.	280.0 M.	22.4 M.	8%	1.8 million
			Total Tax Revenue	$2.3 million

[a] Adjusted for assumed occupancy factors

[b] Assumed to be 8% of total revenues.

The City and State taxes which will be directly generated by Stage I of Park Plaza can be summarized as follows. See Table III-5.

Table III-5

SUMMARY OF PROJECTED CITY AND STATE TAX RECEIPTS GENERATED DIRECTLY
(Millions of Dollars)

Property Tax	
Tax Yield A	$5.6
Tax Yield B	7.5
Sales, Meal and Occupancy Tax	2.7
Personal Income Tax	8.2
Business Tax	2.3
Total with Tax Yield A	$18.8
Total with Tax Yield B	$20.7

Boston's expected receipts of these total City and State taxes include the property tax revenues and a share of the State revenues from the other taxes. It was assumed that Boston will receive roughly 15 percent (Boston's sales tax based State aid share) of the State meal, sales, and room occupancy tax revenues and 11 percent (Boston's share of total State population) of the business and personal income taxes. Boston's expected receipts of Park Plaza tax revenues

were then calculated and totals of $7.1 to $9.0 million obtained. See Table III-6.

Table III-6

BOSTON'S EXPECTED RECEIPTS OF THE TOTAL STATE AND LOCAL TAXES TO BE GENERATED DIRECTLY
(Millions of Dollars)

Property Tax	
Tax Yield A	$5.6
Tax Yield B	7.5
Share of State Sales, Meal, and Room Occupancy Tax	.4
Share of State Business and Personal Income Tax	1.1
Total with Tax Yield A	$ 7.1
Total with Tax Yield B	$ 9.0

Boston's tax yield from revenues directly associated with the Park Plaza project at the completion of Stage I is thus expected to be between $7.1 and $9.0 million. The remainder of the total City and State taxes directly generated by the project represents revenues to be received by the State ($11.7 million).

Indirect Tax Revenue Benefits

In addition to the tax revenues to be generated directly by Park Plaza, by the individuals, establishments, and business activity in the project area, Park Plaza, through sales and purchases from other sectors, will have an

indirect impact on the rest of Boston's economy and will expand tax revenues by increasing sales, business revenues, and personal income in other sectors. Park Plaza will also stimulate improved utilization of land in areas surrounding the project, a pattern which has accompanied other major redevelopment projects in downtown Boston. Better use of the land will be reflected in higher market values and assessments, and increases in the City's property tax revenues. Park Plaza, in other words, will have repercussions on the City's economy and tax revenues which will extend beyond the project boundaries.

To generate the retail sales and business activity which will occur in the Park Plaza area, the firms engaged in these activities will make purchases of materials and services from other firms which, in turn, will make purchases from still other firms, and so on. In this way, Park Plaza, in addition to its direct impact, will produce a ripple-like effect which may extend through many series and rounds of transactions. Tracing these effects for each round and industry would be a very laborious task if done

by hand. Fortunately, Input-Output analysis does just this and the Office of Business Economics 1963 study of the national economy facilitates the calculation of total direct and indirect impacts.*

Part of the information produced by the OBE study was a total requirements table, essentially an 82 by 82 matrix showing each industry's total direct and indirect input requirements needed to produce one dollar's worth of output for delivery to final demand. The sales, revenue and rental figures estimated earlier for the retail, hotel, office, and apartment components of Park Plaza were assumed to be essentially the equivalent of final demand. The coefficients in the OBE's total requirements table were used to determine the total direct and indirect inputs from other industries which would be required to support these levels of output or final demand. In this way, it was determined that the $68.25 million of retail sales, the $9.86 million hotel revenues, the $10.69 total apartment rentals, and the $280 million business income associated with the office space in Park Plaza represent not only a direct

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* "Input-Output Structure of the U.S. Economy: 1963", Survey of Current Business, Washington, D.C. November 1969.

demand totalling $369 million, but imply an additional indirect impact of $303 million.

This $303 million comprises business revenues which will be subject to the same business taxes as the revenues directly generated in the Park Plaza area. Assuming, as was done before, that 8 percent of total revenues represents taxable income which will be taxed at an average rate of 8 percent, this additional $303 million indirectly generated by the existence of Park Plaza can be expected to produce $1.94 million in business tax revenues in the first year following completion of Stage I of Park Plaza. See Table III-7.

This analysis of the indirect impact is carried a step further by estimating the additional employee compensation and personal income taxes which will be indirectly associated with Park Plaza. The total amount of employee compensation associated with each major component of the business revenues which will be indirectly generated by the activities to be located in Park Plaza was estimated by using the ratios, developed by OBE from their input-output information, of employee compensation to total output in

appropriate industries. These amounts represent $94 million of personal income which, taxed at a 5 percent rate, will produce $4.69 million more in tax revenues for the State.

Table III-7

STATE BUSINESS TAX INDIRECTLY ASSOCIATED WITH PARK PLAZA
(Millions of Dollars)

Project Component	Annual Revenues[a]	Additional Inputs From Other Industries Required for this Level of Final Demand	Taxable Income (8% of the Additional Inputs)	Estimated Annual Taxes[b]
Retail-500,000 sq.ft. plus hotel restaurants, banquet, entertainment facilities	$68.25	$34.51	$2.76	$ .221
Hotel-800 rooms	9.86	6.96	.56	.0445
Office-1.1 million sq. ft.	280.0	256.16	20.48	1.64
Residential-1,650 dwelling units	10.69	5.34	.43	.034
		Total Tax Revenue		$1.94

[a] Adjusted for assumed occupancy factors.

[b] 8 percent rate applied to taxable income.

Indirect Property Tax Yield

Another indirect effect of Park Plaza will be the increases in property tax revenues in downtown Boston, particularly the areas immediately surrounding the Park Plaza development area. It has been estimated that increased tax revenues of $4.4 million associated with increased property values and assessments in adjacent neighborhoods will be generated by Park Plaza in the year following completion.

Substantial growth in property values occurred in the Back Bay-Beacon Hill, South End and Central-North End areas from 1962-1972. Much of this growth is attributable to major redevelopment projects--the Prudential, Government Center, and the South End Urban Renewal Projects--located in or near these areas. It is expected that Park Plaza will reinforce the 1962-1972 pattern of growth and will indirectly produce increases in the next decade which should match, or even surpass, the earlier growth.

To estimate the increase in property tax revenues from the downtown area that will indirectly be generated by Park Plaza in the year following completion, it was assumed that the average annual 1962-72 growth* in property value will

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* Robert Engle and John Avault, Indices of Residential Property Values and Assessments in Boston, by Planning District, 1946-72, (Draft Report), Boston Redevelopment Authority, Research Department, December 1972.

Robert Engle, Boston Redevelopment Authority, Research Department, The Value of Boston's Housing Stock, 1950, 1960, and 1970. (Draft Report)

also occur in the next ten years. This annual rate of growth was then utilized as a base for projecting the growth in assessed valuations in adjacent neighborhoods. Using the current tax rate, the expected increment in property tax revenues indirectly generated by Park Plaza is $4.4 million.

The total property, business, and personal income tax which would be generated indirectly by Park Plaza in the first year following completion is $11 million. Assuming that Boston would receive the property tax and share in roughly 11% of the business and personal income tax, it would receive $5.1 million of these revenues which would leave $5.9 million for the State.

The City and State taxes which will be directly and indirectly generated by Park Plaza can be summarized as follows. (See Table III-9)

Boston's expected receipts of these total revenues directly and indirectly generated by Parcels A, B, and C (the property tax, 15% of the sales, meal, and occupancy tax, and 11% of the business and personal income tax) are between $12.2 and $14.1 million. They are summarized below in Table III-10.

TABLE III-9

SUMMARY OF PROJECTED CITY AND STATE TAX RECEIPTS GENERATED DIRECTLY AND INDIRECTLY BY PARK PLAZA IN THE YEAR FOLLOWING COMPLETION
(Millions of Dollars)

	Total	Generated Directly	Generated Indirectly
Property Tax			
Tax Yield A	$10.0	$ 5.6	$ 4.4
Tax Yield B	11.9	7.5	
Sales, Meal and Occupancy Tax	2.7	2.7	--
Personal Income Tax	12.9	8.2	4.7
Business Tax	4.2	2.3	1.9
Total:			
With Tax Yield A	$29.8	$18.8	$11.0
With Tax Yield B	$31.7	$20.7	

TABLE III-10

SUMMARY OF BOSTON's EXPECTED RECEIPTS OF THE TOTAL STATE AND CITY TAXES GENERATED DIRECTLY AND INDIRECTLY BY STAGE I OF PARK PLAZA IN THE YEAR FOLLOWING COMPLETION
(Millions of Dollars)

	Total	Generated Directly	Generated Indirectly
Property Tax			
Tax Yield A	$10.0	$5.6	$4.4
Tax Yield B	11.9	7.5	
Share of Sales, Meal and Occupancy Tax	.4	.4	--
Share of State Business and Personal Income Tax	1.9	1.1	.7
Totals			
With Tax Yield A	$12.2	$7.1	$5.1
With Tax Yield B	$14.1	9.0	

IV. PUBLIC COSTS OF PARK PLAZA IN THE FIRST YEAR AFTER COMPLETION

In the first year after completion (1983), Park Plaza will entail public costs to the City of Boston estimated at $6 million. See Table IV-1. These include $5.0 million, for the provision of services, and $1.2 million for the installation of public facilities. The component elements of the public cost include $3.6 million for specific costs of the provision of services and facilities to Park Plaza, (Table IV-2) $582,000 for debt service charges on prior public capital construction for Park Plaza (Table IV-3) and $2 million representing Park Plaza's share of general municipal government administration costs, (Tables IV-4 and IV-5). Each of these aspects, and their relationship to total municipal expenditures, debt servicing and the City's indebtedness capacity, are presented in the following pages.

Specific Public Costs for Park Plaza Services and Facilities

Specific public costs for Park Plaza, in the first year after completion, include $2.8 million, for services, and $0.8 million for capital construction. See Table IV-2. Principal projected costs are those for public transit, public housing,

Table IV-1

PUBLIC SERVICE AND FACILITY COSTS OF PARK PLAZA TO THE CITY OF BOSTON AND THE STATE IN THE FIRST YEAR AFTER COMPLETION (1983)
(Thousands of Dollars at 1970 Prices)

	Total Costs	Operating Costs	Capital Costs
Public Costs for Services and Facilities, Total	$6,181	$4,954	$1,227
Costs Estimated on a Per Capita or Per Unit Basis: [a]			
Public Safety [1]	605	568	37
Health and Hospitals [2]	60	50	10
Sanitation, Sewer and Water [3]	853		68
Streets and Roads [4]	270	194	76
Education [5]	37	31	6
Sub-Total	1,825	1,628	197
Other Costs:			
Transit [6]	1,139	919	220
Cultural [7]	3	3	-
Parks [8]	181	88	93
Housing [9]	455	183	272
Sub-Total	1,778	1,193	585
Debt Service: [b]	582	582	-
Other General Government Costs: [c]	1,966	1,551	445

Sources:

(a)
See Table II.
The designations following numbers (1)-(9) below refer to specific cost issues noted in Environmental Impact Statement-Park Plaza Urban Renewal Project, Saratoga Associates, May 1973:
(1) E-25, E-26, E-27, E-28.
(2) E-20, E-21.
(3) E-33, E-36, E-37, E-34, E-39, E-40.
(4) E-49.
(5) E-18, E-19.
(6) E-46, E-47.
(7) E-24, E-32.
(8) E-30, E-31.
(9) E-16, E-17.

(b)
See Table III.

(c)
Park Plaza's share of projected taxable valuations for 1982 (.01838) times the projected General Government Administration Expenditures for that year
less "Other Costs" above and Park Plaza's projected general share of its own debt service (.01838 times $600,000).

Table IV-2

SPECIFIC PUBLIC COSTS FOR PARK PLAZA SERVICES AND FACILITIES (1983)
(Thousands of Dollars at 1970 Prices)

	Operating Costs		Capital Costs		Total Costs
Public Housing	(E17)	$183	(E16)	$272	$455
Public Educational System	(E19)	31	(E18)	6	38
Public Health Service System	(E21)	50	(E20)	10	60
Public Police Protection	(E26)	341	(E25)	22	363
Public Fire Protection	(E28)	227	(E27)	15	242
Public Parks Expenses	(E31)	88	(E30)	93	181
Public Cultural Services	(E32)	3		0	3
Public Solid Waste System	(E39)	60	(E33)	4	64
Public Water Supply	(E37)	465	(E36)	29	494
Public Sewerage	(E40)	260	(E39)	35	295
Public Transit System	(E46)	919	(E47)	220	1,139
Public Surface Transportation System	(E49)	194		76	270
Total		$2,821		$783	$3,604

Sources and Methods: See accompanying text.

(Note: Letters and numbers in parentheses refer to cost issues noted in Saratoga Associates, Environmental Impact Statement, May 1973).

and public safety. There will also be costs for public education, health, parks and cultural activities, solid waste disposal, water supply and sewerage. The nature of these Park Plaza costs, and how they were estimated, are described below. The importance of estimating these costs, in the evaluation of the Park Plaza project, was noted in a recent report by Saratoga Associates entitled, Environmental Impact Statement, Park Plaza Urban Renewal Project, May 1973.

Public Housing Capital Investment Costs (E16)

If the 150 units of housing for the elderly, planned for Park Plaza, were built under the Massachusetts Housing Finance Agency's rent-skewing program, the capital investment costs to the City would be negligible since the costs of the elderly units would be absorbed, in effect, by the rents from the luxury units, and no direct capital outlay or debt servicing, by the City, would be required. The 150 units of elderly housing represent 9 percent of the proposed units for the first stage of the Park Plaza project.

Other alternatives to rent-skewing include subsidy under the State 707 housing subsidy program or the Boston Housing

Authority leased housing program, under which a household is required to pay only 25 percent of their income for rent. At $25,000 construction cost per unit, the total cost for the housing for the elderly would be $3,750,000. With a 40-year 5% mortgage with bonds issued in 1980, the 1982 debt service would be:

Principal	Interest	Total
$93,750	$178,125	$271,875

Public Housing Related Operating Expenses and Subsidies (E17)

Alloting some $200 per year per elderly household for health and special care over and above Medicare, some $30,000 per year might be needed for the 150 units of housing for the elderly. Operating costs outside of debt service are $85 per unit per month, or $153,000 per year.

Public Educational System Capital Investment Costs and Operating Expenses (E18)(E19)

In 1972 total Boston public school enrollment was 96,230 with a $101,000,000 operating expenditure. This averages $951 per pupil. Recent surveys in upper and middle income

apartment complexes similar to Park Plaza have shown that the under 18 population makes up 3 percent of the total. Applying this same percentage to Park Plaza, with an expected population of 3,000, some 90 persons under 18 years old would be living in Park Plaza, including some 15 preschoolers. This means there would be 75 school age children here with well over half attending private schools because of the income factor. Assuming 30 school age children would live in Park Plaza, a per pupil cost can be computed.

1983 Boston public school enrollment is projected at 162,000* pupils. Assuming a similar level of expenditure to the 1972 operating budget, the 1983 operating budget would be $170,000,000, for an average per pupil expenditure of $1,049 or $31,470 for the projected Park Plaza school age population.

A capital expenditure of $25,000,000 for 1982 is projected, under the City's 10-year public facilities program, (See Table IV-4) for a per pupil cost of $216 or $6,481 for the Park Plaza school population.

Operating expenses for Park Plaza school population	$31,470
Capital expenditures for Park Plaza school population	6,481
Total	$37,951

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* Assumes the possibility of a shift of parochial school students to the public school system. In the absence of this assumption, public costs would be less.

Public Health Service System Capital Investment Costs (E20)

Public Health Service System Operating Expenses (E21)

Of the total projected Park Plaza population, in view of the expected higher level of income distribution in the project, only about 10 to 15% of the residents, or those from the 150 units for the elderly, might be likely to call on public health service facilities. If we assume the 150 households from the elderly housing units, plus others for emergency visits, represent those to be served by public health facilities, a figure of 500 qualifying people using 700 patient days can be estimated. 700 patient days at $100 per day totals $70,000. Even allowing a higher estimate of $100,000, one-half of this cost can be allocated to private facilities, since the patients would probably be accommodated at the Mass. General Hospital and the New England Medical Center, both of which are closer than Boston City Hospital, for a possible cost of $50,000. Most of the hospital cost for the elderly will be covered by Medicare or Welfare, so the charge to public health and hospitals is minimal.

Public capital outlays are projected at $10,000, representing the Park Plaza share of 1983 facilities planned in the City's 10-year capital program.

Public Social Service System Capital Investment Costs (E22)

No expenditures are anticipated other than those mentioned in (E17),(E20), and (E21), above.

Public Social Services Operating Expenses (E23)

See (E17).

Public Cultural Services Capital Investment Costs (E24)

No expenditures are anticipated for Park Plaza.

Public Police Protection Capital Investment Costs (E25)

Public Fire Protection Capital Investment Costs (E27)

Of the programmed 1983 capital expenditures for public safety, the Police Department share represents 60% and the Fire Department 40%. 1983 estimated capital expenditures for public safety are $8,300,000; $4,980,000 for police and $3,320,000 for fire. (Source: Table IV-4: Municipal Accounts Projected for 1983.) Boston will have a 1983 estimated population of 675,000 and Park Plaza's 3,000 inhabitants will represent .44% of that total. This equals a 1983 Park Plaza capital expenditure share of $21,912 for police and $14,608 for fire.

Public Police Protection Operating Expenses (E26)

Public Fire Protection Operating Expenses (E28)

Police and fire estimated operating costs will total $129,200,000 in 1983, (Source: Table IV-4 Municipal Accounts Projected for 1983 , including $77,520,000 for police and $51,680,000 for fire. Using .44% as Park Plaza's share of Boston's estimated 1983 police services, the cost attributable to Park Plaza will be $341,088. Fire protection services attributable to Park Plaza will be $227,392.

Park Plaza Police Protection Operating Expenses	$341,088
Park Plaza Fire Protection Operating Expenses	227,392
	$568,480

Public Parks Capital Investment Costs (E30)

1983 Parks and Recreation programmed Capital Expenditures are $5,000,000 or $7.40 per person for the 675,000 population projected. For Park Plaza, with a projected daytime population of 12,600, the total would be $93,240.

Public Parks Operating Expenses (E31)

Estimated operating expenses for 1983 will total $10,000,000. Park Plaza's attributable share is .44% of the total or $44,000. Adding a factor of 2 because of Park Plaza's proximity to the Common and the Public Garden

and an expected increase in user demand on these facilities, the share would rise to $88,000 for operating costs.

Public Cultural Services Operating Expenses (E32)

The 1972 Summerthing operating budget was $463,000. Assuming a 1983 expenditure of $1 per person, Park Plaza's share would be $3,000.

Public Solid Waste Capital Investment Costs (E33)

Park Plaza's .44% of Boston's projected 1983 population would have a minimum impact on increased generation of solid waste. The City's capital improvements plan proposes construction of a $20 million incinerator, hopefully privately funded. If funding were private, there would be no capital investment cost required by Park Plaza. The city currently contracts out all trash pickup, hence there would be no outlays necessary for equipment such as trucks.

Assuming the City does build a $20 million incinerator, Park Plaza's imputed share of the cost of the incinerator in 1983 would be $4,400 (annually for 20 years).

Public Solid Waste System Operating Expenses (E39)

In 1972 the weekly trash collection charge for Back Bay, North End, Beacon Hill and Chinatown with an approximate 40,000 population was $14,320 or $744,640 per year. This

averages $18.61 per year per resident.

In Park Plaza the only trash collection made by the City will be the 3,000 estimated permanent residents since all other non-residential refuse will be privately collected. Assuming a 3,000 population for Park Plaza with a $20 per year per resident trash figure, Park Plaza would cost $60,000 per year.

Public Water Supply Capital Investment Costs (E36)

Public Sanitary Sewerage Capital Investment Costs (E39)

Park Plaza's resident population share of Boston's 1983 population is .44%. Allowing for non-residential uses, such as hotel and office space, however, a factor of 1.87% has been used for these cost items.

Park Plaza's water supply has been deemed adequate to meet the projected increased demand in the area. The 1983 projected capital expenditure program for water is $1.5 million, with Park Plaza's attributable share $28,830. The projected capital expenditure program for sewerage in 1983 is $1.9 million with Park Plaza's share calculated at $35,340.

Park Plaza share of water capital investment costs	$28,830
Park Plaza share of sewerage capital investment costs	$35,340
	$64,170

Water Supply Operating Expenses (E37)

Boston's 1970 water operating cost was $18,500,000 (Source: 1970 Auditor's Report). Assuming a 1983 water operating cost of $25,000,000, 1.87%as Park Plaza's share would represent $465,000. Since there is a users charge on water, however, most, if not all, of this amount would be recoverable.

Public Sewerage Operating Expenses (E40)

Boston's 1970 Sewerage operating cost was $10,000,000, (Source: 1970 Auditor's report). Assuming the same rate of increase for sewer operating costs as for water, the 1982 sewer operating cost will be roughly $14,000,000. Applying the same factor of 1.87% Park Plaza's share of sewerage cost would be $260,000. As with water, most of this cost will be recoverable through a sewer usage charge.

Park Plaza share of water operating expenses	$465,000
Park Plaza share of sewerage operating expenses	$260,000
	$725,000

Public Storm Drainage Operating Expenses (E42)

Because the land area occupied by the proposed Park Plaza Development will not change, there will be no increased volume of storm drainage. It will remain the same.

Public Signal Capital Improvement Costs (E44)

Additional costs for signal systems operating and capital expenditures required for Park Plaza are minimal, over and above those already included in (E43) in the capital cost of $235,600 projected to take place in 1975 and 1976.

Public Signal System Operating Expenses (E45)

See (E44) above.

Public Transit System Capital Investment Costs (E46)

The Green Line on which Park Plaza is located will not require any additional costs and is expected to adequately handle the increased patronage generated by Park Plaza. Improvements totalling $88 million have already been programmed for the Green Line. Most of this will be spent on new street cars with greatly increased loading capacity. Inadequate loading facilities on the trains are one of the biggest reasons for tie-ups on the Green Line.

Park Plaza will generate at least 5% of all Green Line trips and on that basis a cost could be imputed to Park Plaza as its share of the $88 million in proposed capital expenditures for the Green Line. This would be 5% of $88 million, for a $4.4 million total share. Spread over 20 years, the annual capital cost to Park Plaza would be $220,000.

Public Transit Operating Expenses (E47)

Park Plaza would generate approximately 12,670 Green Line passengers daily. Using the 1970 MBTA ridership and operating costs, the average operating cost per passenger is 71 cents. Roughly 15 percent of Green Line Park Plaza riders would pay 25 cents per fare for a subsidy cost of 46 cents or $874 per day. Some 85 percent of riders would pay a 45-cent fare for a subsidy cost of 26 cents per fare or $2,800 per day. Total per day cost is $3,674. Assuming 250 workdays, this means an operating cost of $918,500.

Public Surface Transportation System Operating Expenses (E49)

According to a cordon analysis of Park Plaza a 1 percent increase in traffic trips generated by Park Plaza can be anticipated. The 1983 projected operating expense for highways, streets, and sidewalks is $19.4 million, with a projected capital expenditure of $7.6 million. Park Plaza's share for operating costs would be $194,000 and a capital share of $76,000.

Debt Service

Some $6.8 million in public capital facilities outlays are scheduled to be expended (in 1975, 1976 and 1977) in Park Plaza for public site improvements, public parks and open space, water utility systems, sanitary sewage system service lines, storm drainage service lines, police and fire alarm signal systems, street traffic signal systems, and improved traffic circulation and street pattern systems.

Bonds issued in 1975 and 1976 to finance these public capital outlays, will be repaid, over a 20-year period, at an estimated interest rate of 5.3 percent.

Projected debt service costs through 1983 are shown in Table IV-3.

Table IV-3

DEBT SERVICE SCHEDULE FOR PUBLIC FACILITIES OUTLAYS
PLANNED FOR PARK PLAZA
(Thousands of Dollars at 1970 Prices)

	1975	1976	Total
Bond Issuance	$4,000	$2,800	$6,800*
Debt Servicing Schedule			
1976	412	-	412
1977	401	288	690
1978	391	281	672
1979	380	274	654
1980	370	266	636
1981	359	259	618
1982	348	251	600
1983	338	244	582

*
20-year bonds at 5.3 percent.

Other General Government Costs

Apart from the specific public service and facilities costs of Park Plaza, and the debt service for capital outlays programmed for the years 1975 and 1976, Park Plaza would bear a share of the general cost of municipal administration. For the year 1983, Park Plaza's share of general municipal administration expenditures is estimated at $2 million.

For the purpose of obtaining this estimate, use was made of projections of Boston's municipal expenditures for services and facilities for the year 1983. See Table IV-4.

Next, Park Plaza's share of general municipal government expenditures was estimated on the basis of its taxable property value share in relation to that of the City as a whole. See Table IV-4.

Table IV-4

CITY OF BOSTON PROJECTED MUNICIPAL EXPENDITURES
FOR SERVICES AND FACILITIES, 198
(Millions of Dollars at 1970 Prices)

	Total	Operating Services	Capital Facilities
Total	$812	$646	$166
Public Safety	137	129	8
Health and Hospitals	114	97	17
Welfare	13	13	-
Sanitation, Sewer and Water	73	65	8
Streets and Roads	36	19	17
Education	186	161	25
Urban Development	38	13	25
General Government Administration	215	149	66

Sources:

Boston Redevelopment Authority, Research Department, Fiscal Aspects of the City of Boston Economy, (Study in Progress).

Boston Redevelopment Authority, Research Department, Planning for Boston; Public Facilities and Capital Improvements; The Record, 1960-67; The Revitalization, 1968-72; The Program, 1973-82, (Draft in Review).

Table IV-5

TAXABLE PROPERTY VALUATION BASE AS A MEASURE OF THE PARK PLAZA SHARE OF GENERAL MUNICIPAL GOVERNMENT ADMINISTRATION COST IN 1982

1) $260 million - Park Plaza Cost

2) Assessment Market Value Ratio (Current Practice):

New Office Space	-	0.19
New Residential	-	0.29
Other New Property	-	0.24
Unweighted Average		0.24

3) 0.24 x $260 million = $62.4 million (Estimated Assessed Value of Park Plaza)

4) Projected 1982 Taxable Property Value (City-wide)* $3,395 millio

5) (3)/(4) = $62.4 million / $3,395 million = .01838 Park Plaza Share of General Municipal Government Administration Cost in 1982.

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* See Source Citation in Table IV-4.

Park Plaza and the City's Debt Servicing Capacity

Park Plaza will affect the City's indebtedness and debt servicing capacity both in terms of the direct and indirect requirements for public capital facilities, and the annual debt servicing costs for their financing. The impact of Park Plaza may be examined in the context of its relation to the City's long-term capital program, planned annual new loan emissions, projected annual debt servicing levels, the foreseen rise in indebtedness, and the anticipated debt limit.*

A comparison of Park Plaza public capital outlays and their financing with the capital plans of the City, and related loan emissions, debt servicing and indebtedness levels, shows that Park Plaza will have a minimum impact readily encompassed in the City's fiscal capacity. In the year 1983, projected capital outlays of $1.2 million for Park Plaza (Table IV-1) will represent 0.7 percent of the City's projected capital outlays (Table IV-4).

* Boston Redevelopment Authority, Research Department, Planning for Boston; Public Facilities and Capital Improvements; The Record, 1960-67; The Revitalization, 1968-72; The Program, 1973-82. (Draft Report in Review).

Debt service, in 1983, on Park Plaza public capital outlays, projected at $582,000 (Table IV-3 would make up 2.2 percent of the projected debt service for the City as a whole. In 1983, the City's debt service outlays are projected to account for 5.5 percent of total municipal expenditures. The City's bonded indebtedness will remain well below the projected debt limit. (See Table IV-6).

Park Plaza and State Government Costs

Park Plaza would increase State Government costs. These may be estimated as proportionate to Park Plaza's share of state population. State government expenditures for 1983 are projected at $3.7 billion.* Park Plaza would cost state government an estimated $2.5 million in 1983.

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* Senate of the Commonwealth of Massachusetts, Third Report of the Special Commission to Develop a Master Tax Plan, Relative to the Massachusetts Economy and Its Growth Potential, Senate Print No. 1315, February 1971.

Table IV-6

PARK PLAZA AND THE CITY'S DEBT SERVICING CAPACITY

	Park Plaza (Millions of Dollars) (1)	City of Boston (Millions of Dollars) (2)	Park Plaza As a Percent of The City of Boston (In Percent) (3)
Public Capital Outlay, 1982	$1.5	$166	0.9
New Bond Issue, 1983	1.5	46*	3.2
Net Debt Service, 1983	.6	27*	2.2
Indebtedness	10.0	130*	7.7
Debt Limit		161*	

* Capital Projects funded under the City's Debt Limit.

Sources:

Col. (1): Tables IV-1, IV-2 and IV-3.

Col. (2): Table IV-4 and Source Citations in Table IV-4.

V. PARCELS A, B, & C WITHOUT PARK PLAZA; PRESENT VALUE OF BENEFITS AND COSTS OVER THE 50 YEAR SPAN, 1974-2023

To evaluate the implications of the alternative of not undertaking any new development in the Park Plaza area and to compare the future public costs and tax revenue benefits "with" and "without" the Park Plaza project, the present values of public costs and tax revenue benefits which would be generated by the same parcels if no new development took place were computed. The present value of benefits and costs over the 50 year span "without" Park Plaza is treated in the present chapter. The present value of costs and benefits over the 1974-2023 period "with" Park Plaza is the subject of Chapter VI.

Tax Revenue Benefits

To calculate the present value of tax revenue benefits "without" the proposed Park Plaza development on parcels A, B, & C, it was assumed that the status quo of the area now--the business activity, residents, employees, assessed values and City and State taxes produced--also provides an accurate picture, in dollars of constant value, of the

area throughout the period 1974-2023.* It was assumed that State and City tax revenues identical to those produced in this area in 1973 will accrue annually over fifty years. Discounting this stream of benefits at 6%, their present value in 1973 was calculated to be $56 million.

The calculation of present value of the future stream of public costs and tax revenues is very sensitive to the discount rate chosen. The rate used in the present analysis, 6%, suits the interpretations usually associated with the discount rate, (i.e., the role of accounting for the opportunity cost of investment, the social cost of capital for public expenditures such as those involved in the Park Plaza analysis, and the time preference for making the expenditures).

The present value of Boston's expected receipts of the tax revenue benefits that will be generated annually for fifty years, from 1974-2023, was also calculated, by applying 15% as Boston's share of the sales, meal and room occupancy tax and 11% as its share of the personal and

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*By using dollars of constant value, future increases in property values are not considered in the calculation of tax yields. Certain "real" increases in productivity and income can be expected over the 50 year span and these will generate increases in City and State tax revenues. These "real" increases, however, were not incorporated into the projected tax revenues and present value calculations in either of the cases studied (with and without Park Plaza).

business income tax. The present value of Boston's expected receipts from parcels A, B, & C over the next fifty years "without" Park Plaza works out to $31.8 million.

It was assumed that there would be no indirect tax revenue benefits since parcels A, B, & C are a blighting influence on property values in adjacent neighborhoods, and since personal and business income generated indirectly would be negligible (less than $50,000 annually). The present value calculations of the total City and State tax revenues which will be produced in parcels A, B, & C "without" Park Plaza, and Boston's expected receipts of these revenues, are summarized in Tables V-1 and V-2 on the next page.

TABLE V-1

PARCELS A, B, AND C
PRESENT VALUE OF CITY AND STATE TAX REVENUE
BENEFITS OVER THE 50-YEAR PERIOD, 1974-2023, WITHOUT PARK PLAZA
(Millions of Dollars at 1973 Prices)

	Current Annual City & State Tax Revenues, Parcels A, B, & C	Present Value of the 1973 City & State Tax Revenues Received Annually, 1974-2023[a]
Property Tax	$1.8	$28.4
Sales & Meal Tax	.6	10.0
Personal Income Tax	.8	12.9
Business Tax	.3	4.7
Total	$3.6	$56.0

[a] Discounted at 6%.

Table V-2

PARCELS A, B, AND C.
PRESENT VALUE OF BOSTON'S EXPECTED RECEIPTS OF THE CITY
AND STATE TAX REVENUE BENEFITS OVER THE 50-YEAR PERIOD, 1974-2023,
WITHOUT PARK PLAZA
(Millions of Dollars at 1973 Prices)

	Boston's Current Estimated Receipts of City & State Tax Revenue, Parcels A, B, & C, 1973	Present Value of Boston's 1973 Receipts Received Annually for 50 Years, 1974-2023[a]
Property Tax	$1.8	$28.4
Share of Sales & Meal Tax	.1	1.9
Share of Business & Personal Income Tax	.1	1.9
Total	$2.0	$31.8

[a] Discounted at 6%.

Public Costs

To compute the attributable public costs over a fifty year period to the Project area without Park Plaza the same basic methodology was employed as in Chapter II, "Area Costs in 1973."

In terms of dollars of constant value, it is assumed that costs remain at the same levels as in 1973. The present value in 1973 of the tax revenue benefits over the fifty year period 1974-2023 was discounted at 6%. The present value of the fifty year total of direct public costs in the project area without Park Plaza are estimated at $23 million. See Table I-7, p. I-35.

VI. PARK PLAZA: PRESENT VALUE OF THE INCREMENTAL STREAM OF TAX REVENUE BENEFITS THROUGH ENTIRE PERIOD OF ACQUISITION, CONSTRUCTION, COMPLETION AND USEFUL LIFE, 1974-2023

Tax revenue benefits of Park Plaza, as mentioned in the preceding chapter, will not be limited to the single year following completion but will involve a flow of benefits over time. Tax revenues will accrue during acquisition, clearance, construction, upon completion and throughout the useful life of the project which is assumed to extend forty years beyond completion. Annual tax revenues over this entire fifty-year time horizon were therefore calculated and discounted, at 6%, to their present value in 1973.

The results of these calculations, shown in Table VI-1, indicate that the present value of the total 1974-2023 City and State direct and indirect tax revenues associated with Park Plaza would range between $329 and $350 million. State and City taxes generated directly by Park Plaza account for $214 to $235 of this total. The present value of Boston's expected share (the entire property tax plus a portion of the other taxes) of the 1974-2023 total direct and indirect tax revenues is between $146 and $168 million, and the present value of Boston's expected receipts of the tax revenues generated directly by Park Plaza is between $86 and $108 million.

To calculate the tax revenues shown in Table VI-1 procedures used earlier to calculate tax revenues in 1973 and in the year following completion were incorporated and several assumptions were made. It was assumed that (a) taxes on land only, estimated at current assessments and tax rate, will be paid by the developer during construction of each parcel; (b) prior to acquisition, each parcel will generate the same amount of tax revenues it now does; and (c) upon completion of each sub-stage, the appropriate portion of total tax revenues estimated for the year following completion of the entire project will accrue. The planned construction schedule* mentioned in Chapter I (see Table I-5) determines the yearly status of each of the six sub-stages of Park Plaza, and this schedule was used to calculate the State and City tax revenues generated by the new, as well as the existing properties, business activity, residents and employees in parcels A, B, & C during each year until Park Plaza is completed.

A breakdown of the property taxes shown in Table

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*This Schedule was developed on the basis of the timing described in the Letter of Intent. It was assumed that BRA acquisition would begin in 1975 and, thereafter, the midpoint of inside and outside dates specified for each sub-stage in the Letter represents the expected completion date of each component.

Table VI-1

PARK PLAZA:
INCREMENTAL STREAM OF TAX REVENUE BENEFITS TO THE CITY OF BOSTON
(Thousands of Dollars at 1973 Prices)

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	Sub-Total 1974-1983	Sub-Total 1984-2023	Total 1974-2023	Present Value Of Total 1974-2023
I. CITY AND STATE TAX REVENUE GENERATED														
A. GENERATED DIRECTLY														
Property Tax														
Tax Yield A	$1,800	$1,430	$1,572	$2,041	$2,705	$3,275	$3,775	$4,341	$5,345	$5,600	$31,884	$224,000	$255,884	$68,808
Tax Yield B	1,800	1,430	1,572	2,341	3,615	4,375	5,065	5,751	7,095	7,500	40,544	300,000	340,544	90,302
Sales, Meal and Hotel Occupancy Tax	633	317	317	608	1,861	2,309	2,778	2,823	2,868	2,914	17,428	116,560	133,988	36,069
Personal Income Tax	820	411	411	354	1,205	3,517	3,827	4,262	6,028	7,671	28,506	306,840	335,346	82,660
Business Income Tax	298	149	149	380	468	1,218	1,321	1,325	1,854	2,386	9,548	95,440	104,988	26,234
Sub-Totals:														
With Tax Yield A	3,551	2,307	2,449	3,383	6,239	10,319	11,701	12,751	16,095	18,571	87,366	742,840	830,206	213,774
With Tax Yield B	3,551	2,307	2,449	3,683	7,149	11,419	12,991	14,161	17,845	20,471	96,026	818,840	914,866	235,268
B. GENERATED INDIRECTLY														
Property Tax	-	539	1,078	1,633	2,164	2,620	3,020	3,473	4,276	4,480	23,283	179,200	202,483	53,001
Personal Income Tax	-	-	-	205	699	2,040	2,220	2,472	3,496	4,449	15,581	177,960	193,541	47,081
Business Income Tax	-	-	-	220	271	706	766	769	1,075	1,384	5,191	55,360	60,551	14,902
Sub-Total:	-	539	1,078	2,058	3,134	5,366	6,006	6,714	8,847	10,313	44,055	412,520	456,575	114,986
C. GENERATED DIRECTLY AND INDIRECTLY														
Sub-Totals:														
With Tax Yield A	3,551	2,846	3,527	5,441	9,373	15,685	17,707	19,465	24,942	28,884	131,421	1,155,360	1,286,781	328,761
With Tax Yield B	3,551	2,846	3,527	5,741	10,283	16,785	18,997	20,875	26,692	30,784	140,081	1,231,360	1,371,441	350,262

Table VI-1 (Continued)

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	Sub-Total 1974-1983	Sub-Total 1984-2023	Total 1974-2023	Present Value Of Total 1974-2023
II. BOSTON SHARE OF CITY AND STATE REVENUE														
A. GENERATED DIRECTLY														
Property Tax														
Tax Yield A	1,800	1,430	1,572	2,041	2,705	3,275	3,775	4,431	5,345	5,600	31,884	224,000	255,884	$68,808
Tax Yield B	1,800	1,430	1,572	2,341	3,615	4,375	5,065	5,751	7,095	7,500	40,544	300,000	340,544	90,302
Sales, Meal and Hotel Occupancy Tax	95	48	48	91	279	346	417	423	430	437	2,614	17,480	20,094	5,410
Personal Income Tax	90	45	45	39	133	387	421	469	663	844	3,136	33,760	36,896	9,094
Business Income Tax	33	16	16	42	51	134	145	146	204	262	1,049	10,480	11,529	2,880
Sub-Totals:														
With Tax Yield A	2,018	1,539	1,681	2,213	3,168	4,142	4,758	5,379	6,642	7,143	38,683	285,720	324,403	86,195
With Tax Yield B	2,018	1,539	1,681	2,513	4,078	5,242	6,048	6,789	8,392	9,043	47,343	361,720	409,063	107,690
B. GENERATED INDIRECTLY														
Property Tax	-	539	1,078	1,633	2,164	2,620	3,020	3,473	4,276	4,480	23,283	179,200	202,483	53,001
Personal Income Tax	-	-	-	23	77	224	244	272	385	490	1,715	19,600	21,315	5,185
Business Income Tax	-	--	-	24	30	78	84	85	118	152	571	6,080	6,651	1,637
Sub-Total:	-	539	1,078	1,680	2,271	2,922	3,348	3,830	4,779	5,122	25,569	204,880	230,449	59,822
C. GENERATED DIRECTLY AND INDIRECTLY														
Sub-Totals:														
With Tax Yield A	2,018	2,078	2,759	3,893	5,439	7,064	8,106	9,209	11,421	12,265	64,252	490,600	554,852	146,016
With Tax Yield B	2,018	2,078	2,759	4,193	6,349	8,164	9,396	10,619	13,171	14,165	72,912	566,600	639,512	167,512
PRESENT VALUE OF BOSTON SHARE, TOTALS (II-C)														
With Tax Yield A	1,903	1,849	2,318	3,083	4,063	4,980	5,390	5,774	6,761	6,844	42,965	103,051	146,016	
With Tax Yield B	1,903	1,849	2,318	3,321	4,743	5,756	6,248	6,658	7,797	7,904	48,497	119,015	167,512	

VI-1 for each year from 1974-83 into taxes produced by existing property and those produced by the new Park Plaza construction is shown in Table I-6, page I-29. Column 1 shows the tax revenues produced each year by existing properties before they are acquired and demolished plus the tax on land only that will be paid by the developer while construction is underway on different parcels. During the time in which properties are acquired and disposed of by the BRA (projected at 3 months), no tax revenues are forthcoming. When construction begins on each parcel, taxes resuming on land previously off the tax roles account for the fluctuation, rather than steady decline, in tax revenues shown in column 1 of Table I-6.

Two sets of tax yields for the new Park Plaza construction are calculated for each year up to and following completion and those are based on the different rent levels shown in Table III-1, used to calculate property tax yields for the year following completion. Projected taxes on new construction shown in columns 2 and 3 of Table I-6 are tied to the expected completion dates. The hotel and parking garage, for example, are scheduled for completion

in mid-1977. The tax yield from new construction for that year, therefore, is expected to be one-half of the total tax yields for the hotel and parking, $0.9 and $1.5 million, stipulated for the year 1983.

Since all tax revenues are in dollars of constant value and no "real" increases in value have been assumed, property tax revenues generated by each component remain the same after completion over the forty year period of useful life projected. The calculation of the present value of property tax revenues received from 1984-2023, therefore, involved the computation of the present value of two fixed amounts, $5.6 and $7.5 million, received annually from year 11 to year 50, discounted at 6%.

Sales, meal, and room occupancy taxes for each year during the construction phases of Park Plaza were calculated for the new development using the same expectations for sales and productivity discussed in Chapter III for the calculation of tax revenues for the single year following completion. Estimates of annual sales of existing establishments in the Park Plaza area prior to acquisition together with expectations regarding occupancy rates, expected hotel revenues and retail sales and the expected

completion dates of the retail and hotel project components of the new project provided annual estimates of state sales, meal and room occupancy tax to be produced in the area.

The estimated income profile of future project residents (assumed to resemble the Charles River Park, Prudential and Harbor Towers occupants) and the scheduled phases of the residential components of Stage I provided the basis for estimating the State income tax to be derived. Information on present project area residents' income was also incorporated into the estimates of State income tax generated in the Park Plaza area for years prior to acquisition of parcels where present residents now live. Retail and hotel employee income, and the associated taxes, were estimated by applying coefficients (discussed in Chapter III) representing employee compensation as a percent of total output, and then applying a flat 5% tax rate. State income tax revenues generated by the retail and miscellaneous service workers who are presently employed in the project area, and will continue to be so until certain parcels are acquired, were also accounted for. State income taxes

which will be derived from the Park Plaza office employees in each year until project completion were calculated in accordance with the assumed income profile (based on the recent office worker survey) and the scheduled completion dates of the two components of office space. Estimates of State income tax presently derived from workers in the project area were incorporated into these figures for years prior to acquisition of various parcels containing existing office space.

State business taxes derived annually from retail and hotel activities which will be located in the project area were developed from the revenue estimates of components of both the new project and existing firms prior to acquisition. (As earlier, 8% of total business revenues were assumed to represent taxable income, subject to an effective 8% tax rate.) Total office income and resulting business tax for each year were calculated by first estimating total income of firms occupying the office space by applying a coefficient (representing total output vs. employee compensation in certain industries) to the estimated annual office income and then, applying the assumed 8% average rate to 8% of the total revenue figure.

Property, personal income, and business taxes which will be indirectly generated by Stage I of Park Plaza during the construction stage and throughout the useful life of the project were calculated on the basis of the estimates of indirect taxes to be generated in 1983, the year following completion. (See Chapter III.) The proportion of indirect to direct generated revenues for each type of tax in 1983 was assumed to remain the same in all years except the first three, 1974-76 during which indirect taxes were phased-in.

VII. PARK PLAZA'S PRESENT VALUE OF THE INCREMENTAL STREAM OF PUBLIC COSTS THROUGH THE ENTIRE PERIOD OF ACQUISITION, CONSTRUCTION, COMPLETION AND USEFUL LIFE, 1974-2023

The calculation of the incremental stream of public costs through the entire period of acquisition, construction, completion and useful life of Park Plaza, 1974-2023, involved a phasing out of public costs of the existing structures, as they are demolished, and the phasing in of the new structures and uses as they emerge, in accordance with the planned schedule described earlier. As the character of Park Plaza changes from the present underutilized basically non-residential use to that of a residential-retail-office complex, so will the basis of estimating costs change. In the present stage, public costs are calculated largely on the basis of the project area's share of the City's assessed value. See Chapter II. As the new character of Park Plaza emerges, direct detailed specific costs attributable to residents, workers, and shoppers are made. The description of the calculation of the incremental stream of public costs, and their tabular presentation, follow.

Public costs for the Park Plaza area in 1974 before the start of construction are estimated at $1,459,243. See Table VII-1. In view of the basic non-residential character of Parcels A, B, and C, at the present time, specific direct costs for that year were based on the project area's share of

the City's total assessed value of taxable property. General Municipal Government Costs were calculated as a ratio to direct costs (as described in Chapter IV). As the separate parcels of existing property are acquired for project development, both the specific direct costs and the general municipal government costs were phased out.

Upon completion of each of the separate stages of the project, the specific direct costs and the general government costs are estimated as a function of the projected residential, worker and shopper uses. See Chapter IV. In 1983, the first year after project completion, public costs are estimated at $5.6 million.

As construction and completion of the various stages of the Park Plaza Project proceeds, public costs were computed on a per resident, per worker, and per shopper basis, taking into account their respective household structure and income profile. See Chapter IV. The area's population was projected at 3,000 residents and a daytime population of 12,600 in comparison with a total projected city population in 1983 of 675,000. This represents a project area share of .44% and 1.87%, respectively.

TABLE VII-1

PARK PLAZA:
INCREMENTAL STREAM OF PUBLIC COSTS FOR SERVICES AND FACILITIES TO THE CITY OF BOSTON,
1974 - 1983 AND 1984 - 2023
(Thousands of Dollars at 1973 Prices)

	1974[1]	1975	1976	1977	1978	1979	1980	1981	1982	1983	Sub-total 1974-1983	Sub-total 1984-2023	Total 1974-2023	Present Value[4] Of Total 1974-2023
DIRECT PUBLIC COSTS														
Police Protection	$241	$121	$121	$95	$147	$126	$105	$228	$363	$363	$1,909	$14,520	$16,429	$4,390
Fire Protection	160	80	80	64	98	84	70	152	242	242	1,273	9,680	10,953	2,926
Health Service System	1	*	*	*	*	*			60	60	122	2,400	2,522	575
Solid Waste System	1	*	*	*	22	21	21	43	64	64	238	2,576	2,814	689
Water Supply System	114	57	57	120	190	179	309	314	494	494	2,328	19,753	22,081	5,689
Sewerage System	66	33	33	81	135	121	210	201	295	295	1,472	11,814	13,286	3,458
Surface Transportation System	96	48	48	77	106	98	164	170	270	270	1,346	10,800	12,146	3,177
Educational System					12	12	12	23	38	38	134	1,518	1,652	402
Transit System	204	102	102	270	426	404	738	738	1,139	1,139	5,261	45,540	50,801	13,015
Cultural Services	*	*	*	*	1	1	2	2	3	3	12	120	132	33
Park System	56	28	28	71	87	81	107	130	181	181	952	7,250	8,201	2,164
Public Housing[2]								281	460	455	1,196	14,084	15,280	3,983
Special Project Improvements		3,000	2,000	1,800							6,800	--	6,800	5,776
Sub-Total	939	3,470	2,470	2,579	1,224	1,128	1,738	2,280	3,609	3,604	23,042	140,055	163,096	46,275
GENERAL MUNICIPAL GOVERNMENT COSTS[3]														
Operating	404	203	203	335	527	485	748	981	1,553	1,551	6,991	60,288	67,279	17,666
Capital	116	58	58	96	151	139	215	282	446	445	2,007	17,303	19,309	5,070
Total	520	261	261	432	678	625	963	1,263	1,999	1,997	8,998	77,590	86,588	22,736
DIRECT AND INDIRECT PUBLIC COSTS FOR SERVICES AND FACILITIES, TOTAL														
Operating	1,181	592	592	957	1,503	1,390	2,132	2,633	4,375	4,373	19,726	173,146	192,872	49,837
Capital	278	3,139	2,139	2,054	399	362	569	911	1,233	1,228	12,313	44,499	56,812	19,175
Total	1,459	3,731	2,731	3,011	1,902	1,752	2,701	3,544	5,608	5,601	32,040	217,645	249,684	69,012
PRESENT VALUE OF TOTALS[4]	1,376	3,321	2,294	2,385	1,420	1,235	1,796	2,222	3,320	3,125	22,495	46,517	69,012	

[1] Public costs in Park Plaza area prior to development. These costs are phased out through 1979 as the separate parcels of the project area are acquired for development and buildings are demolished.

[2] Included in these figures is the debt service on a mortgage of $3,750,000 at 5.0% for 40 years. Issued in 1980, the debt service runs through 2020.

[3] General Municipal Government Costs were calculated by assigning the percentage relationship of General Municipal Government Costs to Direct Public Costs (55.4%); see Chapter IV. Special Project Improvements were subtracted from Direct Public Costs for this calculation since they already include factors for contingencies (10%), unit cost increases (20%) and engineering (16%).

[4] Present value to 1973 discounted at 6%.

* = less than $500.

Sources and Methods: See Chapters IV. & VII.

Public costs for the project from 1984-2023 were assumed to remain constant for the 40-year period with the exception of the capital cost of the public housing which was based on a 40-year debt servicing schedule. Total public costs for the project from 1984-2023 were found by multiplying the 1983 costs by 40 years as the useful life of the project. (It might be noted that in this analysis the benefits were also assumed to remain constant over the 40-year life of the project).

Finally, costs for the project from 1974-2023 were found by adding the 1974-1983 total cost and the 40-year total project cost.

The present value of public costs for Park Plaza from 1974-2023 was also calculated using a 6% discount rate.

As noted in Chapter IV, certain costs were imputed to Park Plaza which, in all probability, will not be specifically borne by the City. These could include both the operating and capital costs of the public housing units since, as explained earlier in Chapter IV, operating costs might be absorbed through rent-skewing. Capital costs for the housing will probably be absorbed by Federal and/or State government.

Water and sewer operating costs attributable to Park

Plaza are in actuality minimal because of water and sewer usage charges levied against the Project owners. The same holds true for the capital costs of the public transit system. The MBTA capital program is currently funded by a combination of Federal grants matched in some degree by state bond issuances at no cost to the City. All of these items have been included as possible costs attributable to the Park Plaza development, nevertheless.

VIII. PARK PLAZA; BENEFITS AND COSTS TO THE STATE

Over the 50-year period, 1974-2023, Park Plaza will generate tax revenues for the State having a present value of $183 million. The present value of costs over this same period may not exceed $20 million.

Benefits

In the calculation of Boston's expected tax revenue benefits from Park Plaza in the single year following completion and throughout the 50-year period, 100 percent of the property tax, 15 percent of the sales, meal, and room occupancy tax, and 11 percent of the personal income and business tax have been allocated to the City. Conversely, in effect, the State will receive tax revenues amounting to 85 percent of the sales, meal, and occupancy tax and 89 percent of the personal and business income tax.

In the single year following completion of Park Plaza, the State's receipts of the total direct and indirect revenues generated are expected to be approximately $17 million. The present value of the State's annual receipts of these direct and indirect tax revenues during the acquisition, construction, completion and useful life of the project--over the entire 1974-2023 period--is expected to be approximately $183 million. The present value of the State's expected receipts of tax

revenues generated directly by Park Plaza over the 50-year period amounts to $128 million.

The incremental stream of the State's expected share of tax revenue benefits generated directly and indirectly by Parcels A, B, and C are shown in Table VIII-1. The State share of direct and indirect revenues for each year during the construction phase until completion are shown separately and are summarized for 1984-2023, the forty years of useful life following completion of the project. The final column shows the present value of the incremental stream of the State's share of Park Plaza tax revenue benefits over the entire 1974-2023 fifty-year period, discounted at 6 percent.

TABLE VIII-1

INCREMENTAL STREAM OF STATE SHARE OF
PARK PLAZA TAX REVENUE BENEFITS
(Thousands of Dollars at 1973 Prices)

STATE SHARE OF TAX REVENUE	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	Sub-Total 1974-1983	Sub-Total 1984-2023	Total 1974-2023	Present Value of Total 1974-2023
A. GENERATED DIRECTLY														
Sales, Meal and Hotel Occupancy Tax	$ 538	$269	$269	$ 517	$1,582	$1,963	$2,361	$ 2,400	$ 2,438	$ 2,477	$14,814	$ 99,080	$113,894	$ 30,659
Personal Income Tax	730	366	366	315	1,072	3,130	3,406	3,793	5,365	6,827	25,370	273,080	298,450	73,566
Business Income Tax	265	133	133	338	417	1,084	1,176	1,179	1,650	2,124	8,499	84,960	93,459	23,354
Sub-Totals	$1,533	$768	$768	$1,170	$3,071	$6,177	$6,943	$ 7,372	$ 9,453	$11,428	$48,683	$457,120	$505,803	$127,579
B. GENERATED INDIRECTLY														
Personal Income Tax	--	--	--	$ 182	$ 622	$1,816	$1,976	$ 2,200	$ 3,111	$ 3,959	$13,866	$158,360	$172,226	$ 41,896
Business Income Tax	--	--	--	196	241	628	682	684	957	1,232	4,620	49,280	53,900	13,265
Sub-Totals				$ 378	$ 863	$2,444	$2,658	$ 2,884	$ 4,068	$ 5,191	$18,486	$207,640	$226,126	$ 55,165
C. GENERATED DIRECTLY AND INDIRECTLY														
Total	$1,533	$768	$768	$1,548	$3,934	$8,621	$9,601	$10,256	$13,521	$16,619	$67,169	$664,760	$731,929	$182,744

Source: Table VI-1

Costs

State government costs will be associated with Park Plaza. These may be estimated as proportionate to Park Plaza's share of state population or .048%. This coefficient was obtained by using .44% as Park Plaza's share of Boston's population and 11% as Boston's share of total state population. Applying this Park Plaza would cost the State government approximately $1,8 million in 1982, and $20 million over the 50-year period, measured in terms of discounted present value.

Other costs which might be attributable to the State from Park Plaza would be public transportation capital expenditures. As stated in Chapter VII, capital expenditures for the MBTA are financed through a combination of Federal grants and State bond issuances. Federal grants are usually on a 2/3-1/3 matching basis. Public transportation capital costs, however, for the purpose of the present analysis have been included as a City, rather than a State cost. The same holds true for public housing capital costs. Funds for public housing construction would come from Federal or State rather than City funding sources, but these also have been attributed as a direct City cost.

IX. COST-BENEFIT ANALYSIS CONCEPT AND THEORY

A brief description of cost-benefit analysis concept and theory will provide some framework for viewing the present application of this technique to the evaluation of the public costs and tax revenue benefits of Park Plaza. Several bibliographical sources and case studies, including a few applications to urban redevelopment projects, are cited, as background to the Park Plaza analysis. These include four earlier project analyses conducted by the Boston Redevelopment Authority, Research Department.

Cost-benefit analysis has been used and interpreted in a variety of different ways. There is no standard definition generally accepted by scholars. In general terms cost-benefit analysis can be described as a technique used to evaluate alternative courses of action. Since it attempts to assess all the costs and benefits accruing to different sectors as a result of alternative actions, it is a technique which provides an appropriate means for evaluating investment decisions made in the public sector.

The origins of cost-benefit analysis have been traced back to a 19th century Frenchman, Jean Dupuit, who studied the utility functions of government and who understood that public enterprises and expenditures have very broad and far-reaching benefits to the community. So-called social costs and benefits have since been investigated further and welfare economists have proposed criteria for evaluating alternative social actions. The first systematic attempt to apply cost-benefit analysis, as we know it today, to public investment decisions occurred in the United States in the 1930's, accompanying the expansion of public investment activity. The technique was first applied to the evaluation of water resource projects, then to transportation and defense expenditures, and later to other types of public expenditures.

The techniques which cost-benefit analysis incorporates have been available and used for some time by firms and private investors in capital budgeting and investment decision-making. In such private investment decisions, where the costs and benefits of concern are limited to those which will directly accrue to the firm or individual, the market value of benefits can be compared with costs, and projects

can be ranked in terms of efficiency, using the market rate of return, as a measure.

Cost-benefit analysis is also a useful tool for evaluating public investment. The process of evaluating alternative investment projects, or, in the case of a single projects, of comparing what would happen if the project were implemented, and if not, can be structured in one of several ways. If a level of benefit or output is specified beforehand, the criteria used for evaluation would be cost minimization. If costs are specified beforehand, benefit maximization would be the criterion used. In the situation where both inputs and outputs are allowed to vary, the relationship between the variation in costs and benefits is the basis for evaluating alternatives, and either of two approaches may be used. Ratios of benefits to costs of each alternative may be derived and the criterion of selecting the project with the greatest ratio applied. Another approach for a key project in a larger program, would seek to evaluate whether benefits are likely to exceed costs. The latter case represents the nature of the present analysis of Park Plaza.

In each case, the appropriate time horizon for considering costs and benefits would be the useful life of the project and the costs and benefits would be discounted back to some prior point in time and their present values used in the comparisons. Differences of opinion arise over the appropriate interest rate to use since it is interpreted as accounting for the opportunity cost of the investment under consideration, the social cost of capital and the time preference for making the expenditure. There also exist differences of opinion and difficulties in measuring the various costs and benefits, and disagreement exists concerning exactly which to include in the analysis and how the many intangibles which accompany public investments should be handled. Disagreement also surrounds the interpretation of the size of ratios and net benefits required to justify undertaking a particular investment.

Differences of opinion and difficulties with certain aspects of the technique have, and will, be gradually resolved as more sophisticated cost-benefit studies are undertaken. This has been true with the evaluation of water resource projects, the area where the most advanced types of applications of cost-benefit analysis are currently made. For other areas of public investment, cost-benefit analysis has potential which has not yet been fully tapped.

Some very interesting applications of cost-benefit analysis which have been made concern the evaluation of urban renewal programs. Attempts have been made to measure the effectiveness of different projects in meeting certain accepted program goals such as improvement in resource allocation and in fiscal positions of local governments, and the benefits resulting from slum clearance.

The present Park Plaza study is not the first application of this type which the Boston Redevelopment Authority has made. Several post-evaluative studies have been conducted by the BRA. These measured the impact of the Prudential, Government Center, Washington Park and Charles River Park projects, and are cited in the list of references which follows.

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APPENDIX TABLES

Table X-1

PARK PLAZA AREA;
NON-URBAN RENEWAL "BUILD" ALTERNATIVE
INCREMENTAL STREAM OF PUBLIC COSTS FOR SERVICES AND FACILITIES TO THE CITY OF BOSTON, 1974-2023
(Thousands of Dollars at 1973 Prices)

	1 1974	2 1975	3 1976	4 1977	5 1983	Sub-Total 1974-1983	Sub-Total 1984-2023	Total 1974-2023	Present Value Of Total 1974-2023
DIRECT PUBLIC COSTS									
Police Protection	$241	$239	$239	$350	$350	$ 3,167	$13,987	$17,154	$ 5,218
Fire Protection	160	160	160	233	233	2,112	9,325	11,437	3,479
Health Service System	1	1	1	1	1	8	35	43	13
Solid Waste System	1	1	1	1	1	10	44	54	17
Water Supply System	114	113	113	165	165	1,496	6,606	8,102	2,465
Sewerage System	66	66	66	96	96	874	3,859	4,733	1,440
Surface Transportation System	96	96	96	139	139	1,263	5,579	6,842	2,081
Transit System	204	203	203	296	296	2,685	11,856	14,541	4,423
Cultural Services	*	*	*	*	*	*	1	1	1
Park System	56	56	56	82	82	743	3,283	4,026	1,225
Sub-total	939	934	934	1,364	1,364	12,358	54,576	66,934	20,361
GENERAL MUNICIPAL GOVERNMENT COSTS									
Operating	404	402	402	587	587	5,320	23,493	28,813	8,764
Capital	116	115	115	169	169	1,527	6,742	8,269	2,515
Total	520	518	518	756	756	6,847	30,235	37,082	11,278
DIRECT AND INDIRECT PUBLIC COSTS FOR SERVICES AND FACILITIES, TOTAL									
Operating	1,181	1,175	1,175	1,716	1,716	15,542	68,636	84,178	25,606
Capital	278	277	277	404	404	3,663	16,176	19,839	6,035
Total	1,459	1,452	1,452	2,120	2,120	19,205	84,811	104,016	31,640

Sources and Methods:

[1]From Table VII-1.

2 & 3
Assumes clearance for construction and a two-year period for the erection of two office buildings with 750,000 square feet of space, and the rehab of other existing properties, raising assessed values by one-fourth.

[4]As a basically non-residential area, public costs were computed on the basis of the ratio of assessed values in the project area to that of the City as a whole.

[5]Costs assumed constant 1977-2023.

[6]Present value to 1973 discounted at 6%.

* = less than $500,000.

Table X-2

PARK PLAZA AREA;
NON-URBAN RENEWAL "BUILD" ALTERNATIVE;
INCREMENTAL STREAM OF TAX REVENUE BENEFITS, 1974-2023
(Thousands of Dollars at 1973 Prices)

	1974	1975	1976	1977*	1983	1974-1983	1984-2023	Total 1974-2023	Present Value Of Total 1974-2023
I. CITY AND STATE TAX REVENUES GENERATED									
A. Generated Directly									
Property Tax									
Tax Yield A	$1,800	$1,793	$1,793	$3,234	$3,234	$28,024	$129,360	$157,384	$47,134
Tax Yield B	1,800	1,793	1,793	3,552	3,552	30,250	142,080	172,330	51,285
Sales, Meal, Hotel Occupancy Tax	633	628	628	628	628	6,285	25,120	31,405	9,903
Personal Income Tax	820	814	814	3,814	3,814	29,146	152,560	181,706	52,103
Business Income Tax	298	285	285	1,565	1,565	11,823	62,600	74,423	21,258
Sub-Totals									
With Tax Yield A	3,551	3,519	3,519	9,241	9,241	75,278	369,640	445,918	130,398
With Tax Yield B	3,551	3,519	3,519	9,558	9,558	77,504	382,360	459,864	134,549
B. Generated Indirectly									
Personal Income Tax		472	472	2,212	2,212	16,428	88,480	104,908	29,769
Business Income Tax		165	165	908	908	6,686	36,320	43,006	12,170
Sub-Total		637	637	3,120	3,120	23,114	124,800	147,914	41,839
C. Generated Directly and Indirectly									
With Tax Yield A	3,551	4,156	4,156	12,361	12,361	98,392	494,440	592,832	172,237
With Tax Yield B	3,551	4,156	4,156	12,678	12,678	100,618	507,160	607,778	176,388

Table X-2 (Continued)

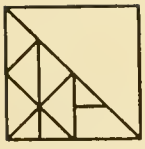
	1974	1975	1976	1977*	1983	1974-1983	1984-2023	Total 1974-2023	Present Value Of Total 1974-2023
II. BOSTON SHARE OF CITY AND STATE REVENUE									
A. Generated Directly									
Property Tax									
Tax Yield A	$1,800	$1,793	$1.793	$3,234	$3,234	$ 28,024	$129,360	$157,384	$47,134
Tax Yield B	1,800	1,793	1,793	3,552	3,552	30,250	142,080	172,330	51,285
Sales, Meal, Hotel Occupancy Tax	95	94	94	94	94	943	3,768	4,711	1,485
Personal Income Tax	90	90	90	420	420	3,206	16,800	20,006	5,741
Business Income Tax	33	32	32	172	172	1,301	6,886	8,187	2,338
Sub-Totals									
With Tax Yield A	2,018	2,009	2,009	3,920	3,920	33,474	156,814	190,288	56,698
With Tax Yield B	2,018	2,009	2,009	4,238	4,238	35,700	169,534	205,234	60,849
B. Generated Indirectly									
Personal Income Tax		52	52	243	243	1,804	9,720	11,524	3,275
Business Income Tax		18	18	100	100	735	4,000	4,735	1,339
Sub-Total		70	70	343	343	2,539	13,720	16,259	4,614
C. Generated Directly and Indirectly									
With Tax Yield A	2,018	2,079	2,079	4,263	4,263	36,013	170,534	206,546	61,312
With Tax Yield B	2,018	2,079	2,079	4,581	4,581	38,239	183,254	221,493	65,463

Sources and Methods:

See Tables VI-1, X-1, and Addenda to Chapter I.

* The Property Tax Yields of the two new office buildings were calculated as follows:

Tax Yield A		Tax Yield B	
$11.75 per sq. foot		$13.75 per sq. foot	
$ 269,662	taxes on smaller bldg.	$ 333,093	taxes on smaller bldg.
1,078,650	taxes on larger bldg.	1,332,375	taxes on larger bldg.
1,508,864	taxes on existing property.	1,508,864	taxes on existing property.
377,216	25% increase on existing property	377,216	25% increase on existing property.
$3,234,392	Total Area Revenue	$3,551,548	Total Area Revenue



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